

DECLARATION STATEMENT

RECORD OF DECISION AMENDMENT

SITE NAME AND LOCATION

General Motors Corporation - Central Foundry Division Site
Massena, Saint Lawrence County, New York

STATEMENT OF BASIS AND PURPOSE

This decision document presents the U.S. Environmental Protection Agency's (EPA's) changes to specific aspects of the December 17, 1990 Record of Decision (ROD) for the first Operable Unit (OU1) of the General Motors Corporation-Central Foundry Division Superfund Site (Site) in Massena, New York. The 1990 ROD was issued by EPA, as lead agency, with the concurrence of the New York State Department of Environmental Conservation (NYSDEC) and the St. Regis Mohawk Tribe (SRMT). The remedial action selected is in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. Sections 9601-9675, as amended by the Superfund Amendments and Reauthorization Act (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300. This decision document (hereinafter, the ROD Amendment) summarizes the factual and legal basis for selecting the remedy modification for the Site.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response actions selected in the 1990 ROD, as revised by this ROD Amendment, may present an imminent and substantial threat to the public health, welfare, or the environment.

DESCRIPTION OF THE MODIFICATION TO THE SELECTED REMEDY

The modification to the selected remedy addresses the disposal of contaminated sediments and soils which will be or have been dredged or excavated from specific areas of the Site. The 1990 decision included the following elements: 1) dredging or excavation of materials containing polychlorinated biphenyls (PCBs) from the General Motors (GM) facility, nearby St. Regis Mohawk Tribal Lands, the St. Lawrence River, the Raquette River, Turtle Creek, North Disposal Area, and Industrial Lagoons; 2) treatment of all materials containing more than 10 parts per million (ppm) of PCBs

to reduce PCB concentrations to below 10 ppm; 3) on-site disposal of the treated materials and capping in accordance with New York State and Toxic Substances Control Act (TSCA) requirements for a chemical waste landfill; 4) control of surface water runoff to prevent further movement of contamination; and 5) extraction and treatment of contaminated groundwater.

This ROD Amendment deals with only a focused portion of the 1990 ROD. It selects off-site disposal, rather than on-site treatment, as the remedy for contaminated materials excavated/dredged from the St. Lawrence River and the Raquette River, along with materials excavated during the installation of the site-wide groundwater controls. All materials from the aforementioned areas with PCB concentrations greater than the OU1 cleanup level of 10 ppm will be shipped off-site for disposal at a secure facility. This ROD Amendment does not change any of the site-specific cleanup levels.

In addition, as a result of further discussions with the St. Regis Mohawk Tribe and other involved government agencies, this ROD Amendment also identifies a contingency remedy. This contingency remedy would expand the scope of the ROD Amendment to include those contaminated sediments and soils identified in the OU1 ROD which are located on Tribal lands, beyond secure (i.e., fenced) areas of GM. This remedy selects off-site disposal, rather than on-site treatment, for OU1 Tribal sediments and soils with PCB concentrations greater than 10 ppm. Tribal sediments and soils with PCB concentrations less than 10 ppm will be disposed of in the East Disposal Area (EDA). Tribal ARARs still apply to the cleanup of OU1 Tribal sediments and soils.

EXPLANATION OF FUNDAMENTAL CHANGE

The 1990 ROD calls for the on-site treatment of dredged sediments and soils with PCB concentrations greater than 10 ppm utilizing either biological treatment or other innovative treatment technologies, with treatment residuals having concentrations of PCBs less than 10 ppm to be contained on-site. A treatability study determined that on-site thermal desorption was the preferred treatment technology.

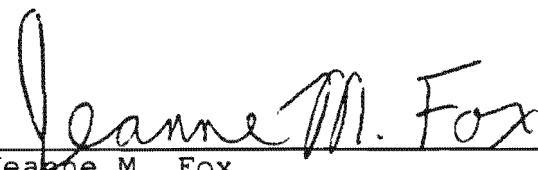
GM began implementation of the OU1 remedy with the St. Lawrence River sediment dredging phase of the 1990 remedy in 1994. In 1995, the dredging of the St. Lawrence River was completed and was successful in removing the vast majority of the PCB mass in the St. Lawrence River adjacent to the GM facility.

In June 1995, EPA issued a Post-Decision Proposed Plan that called for raising the treatment level of the ROD from 10 to 500 ppm PCBs. The additional material with PCB concentrations greater than 10 ppm but less than 500 ppm would have been contained on-site. The 1995 Post-Decision Proposed Plan also recommended designation of the on-site containment area as a Corrective Action Management Unit and thermal desorption as the treatment method for the materials at the Site with PCB concentrations greater than 500 ppm. That proposal accurately reflected a change in EPA policy concerning treatment and disposal of PCB wastes. With the issuance of the Proposed Plan for this ROD Amendment on August 31, 1998, EPA withdrew the 1995 Proposed Plan in response to public opposition to the remedy identified in that plan.

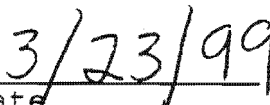
DECLARATION OF STATUTORY DETERMINATIONS

The original remedy, as revised by the selected modification, meets the requirements for remedial actions set forth in CERCLA Section 121, 42 U.S.C. Section 9621, in that it: (1) is protective of human health and the environment; (2) complies with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action; and (3) is cost effective. This ROD Amendment does not satisfy the preference for remedies that employ treatment to reduce the toxicity, mobility or volume of the contaminated sediments and soils.

Because this remedy will result in hazardous substances remaining on-site above levels suitable for unrestricted land use, a review will be conducted within five years after commencement of the remedial action to ensure that it continues to provide adequate protection of human health and the environment.



Jeanne M. Fox
Regional Administrator



Date

RECORD OF DECISION AMENDMENT
GENERAL MOTORS CORPORATION
CENTRAL FOUNDRY DIVISION
MASSENA, NEW YORK

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION II
NEW YORK, NEW YORK

March 1999

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I. INTRODUCTION

The General Motors Corporation (GM)-Central Foundry Division (currently Powertrain Division) Superfund Site (Site) is located on Rooseveltown Road in St. Lawrence County, Massena, New York. The GM facility is bordered on the north by the St. Lawrence River, on the east by St. Regis Mohawk Tribal Lands, on the south by the Raquette River, and on the west by the Reynolds Metals Company and property owned by Conrail (Figure 1).

The Site consists of several areas (Figure 2). The North and East Disposal Areas and the Industrial Landfill contain PCB-contaminated soil, debris, and sludge. There are two inactive and two active industrial lagoons at the Site containing PCB-contaminated liquids, sludges and solids. The Site also includes contaminated sediments and associated wetlands of the St. Lawrence River, the Raquette River and Turtle Creek (formerly called the "unnamed tributary on the St. Regis Mohawk Nation"), contaminated soil on St. Regis Mohawk Tribal Lands and on the banks of the St. Lawrence and Raquette Rivers, contaminated soil on the GM property not associated with the specific disposal areas already mentioned ("miscellaneous site soils"), and contaminated groundwater associated with the Site. The portions of the Site relevant to this Record of Decision (ROD) Amendment are the St. Lawrence River, Raquette River, and soils associated with the installation of groundwater controls.

Land use in the area surrounding the Site consists of mixed residential and industrial uses. Immediately to the east of the Site is the St. Regis Mohawk Nation or Akwesasne. The Reynolds Metals Company facility is immediately to the west of the Site, and the Alcoa facility is approximately 8 miles to the west. Both the Reynolds Metals Company and Alcoa sites are currently the subject of Federal and state cleanup actions. St. Lawrence River flows are controlled by the Moses-Saunders Power Dam, located approximately 4 miles upstream from the Site.

The GM facility consists of approximately 270 acres of industrial and undeveloped land. Wetlands lie to the east of the facility in an area surrounding Turtle Creek. There are no known federally-listed endangered or threatened species inhabiting the St. Lawrence River. However, the River does support a number of New York State-listed endangered, threatened, and special concern fish species. The River and the adjacent areas also provide nesting for a variety of water birds and shore birds. Federally-listed endangered falcons and bald eagles have been reported in the Massena area.

II. SITE HISTORY

GM has operated an aluminum diecasting plant at the Site since 1959. Until 1980, PCBs were a component of hydraulic fluids used in diecasting machines at the GM facility. PCBs provided protection against fire and thermal degradation in the high temperature environment of the diecasting machines. GM no longer uses the diecasting process or PCBs at the facility; however, PCB-contaminated materials remain at the Site.

The GM Site was placed on the Superfund National Priorities List (NPL) in September 1983 as a result of contamination related to GM's past waste disposal practices. In 1985, GM entered into an Administrative Order on Consent (Index No. II CERCLA-50201) with EPA to perform a remedial investigation and feasibility study (RI and FS) to determine the extent to which PCBs were present in the soil, groundwater, and sediments. The RI and FS were completed in June and November 1989, respectively.

Based on the information provided in the RI and FS, EPA issued two RODs for the Site. The first, or Operable Unit 1 (OU1) ROD, was issued in December 1990 (OU1 ROD or 1990 ROD) and addressed contamination in the St. Lawrence River, GM site soils, St. Regis Mohawk Tribal soils and sediments, the North Disposal Area, the Raquette River, surface water runoff, groundwater, and the industrial lagoons.

The second Operable Unit (OU2) ROD was issued in March 1992 and addressed contamination in the Industrial Landfill, East Disposal Area, and groundwater that flowed beneath those areas.

After the RODs were issued, EPA issued a Unilateral Administrative Order (UAO) to GM for OU1 in April 1992 (Index No. II CERCLA-20207), and a UAO to GM for OU2 (Index No. II CERCLA-20215) in August 1992. The UAOS specified the requirements for GM's performance of the remedial design and remedial action involving the two operable units.

GM began implementation of the St. Lawrence River sediment dredging phase of the 1990 remedy in 1994. In 1995, the dredging of the St. Lawrence River was completed and was successful in removing the vast majority of the PCB mass in the St. Lawrence River adjacent to the GM facility. The sediments were stored on-site in three engineered containment cells.

In 1995, EPA issued a Post-Decision Proposed Plan which, based on treatability studies, selected thermal desorption as the preferred treatment technology for contaminated materials from both

Operable Units and proposed the designation of a Resource Conservation and Recovery Act (RCRA) Corrective Action Management Unit (CAMU) to contain the contaminated materials at the Site. The 1995 Post-Decision Proposed Plan also recommended that the treatment level for contaminated materials be raised to 500 ppm PCBs.

EPA's rationale regarding the 1995 Post-Decision Proposed Plan was based, in part, on the enforcement history of the Site. Shortly before the OUI ROD was issued, EPA issued its Guidance on Remedial Actions for Superfund Sites with PCB Contamination (OSWER Dir. No. 9355.4-10, August 1990) which allowed for a 500 ppm treatment level for PCB-contaminated soils at industrial sites, with containment of soils contaminated with PCBs below that threshold. In the UAO requiring GM to implement the OUI ROD, EPA stated that, if GM could provide EPA with information demonstrating, among other things, that materials at the Site contaminated with PCBs \geq 500 ppm could be segregated from wastes with lower levels of contamination, EPA would reconsider the 10 ppm treatment threshold in the OUI ROD. EPA also issued an Explanation of Significant Differences for the OUI ROD announcing that the treatment threshold might be reevaluated.

In June 1994, GM submitted to EPA a Request for Re-evaluation of Treatment Threshold in which GM presented information that would justify a change in the treatment threshold for OUI from 10 ppm PCB to 500 ppm. After determining that a change in the treatment threshold in the OUI ROD was appropriate, EPA issued a Post-Decision Proposed Plan in 1995. EPA received many comments in opposition to that plan. Although the 1995 Proposed Plan was fully protective of human health and the environment and in compliance with EPA policies and regulations, EPA determined that, based on vehement public opposition, a shift in the remediation strategy was warranted.

This ROD Amendment is focused on three areas of the Site and suggests a change to one key element of the remedy selected in 1990 for those areas. The 1990 ROD addressed several areas of contamination in the St. Lawrence River, Turtle Creek, GM Site soils, St. Regis Mohawk Tribal soils and sediments, the North Disposal Area, the Raquette River, surface water runoff, groundwater, and the industrial lagoons (Figure 2). It also specified that on-site treatment would be used to reduce the level of PCBs from greater than 10 ppm to less than 10 ppm with on-site containment of treatment residuals.

This ROD Amendment deals only with the materials excavated/dredged from the St. Lawrence River and Raquette River

and those soils excavated during the installation of site-wide groundwater controls. The Amendment mandates that contaminated materials with concentrations of PCBs greater than 10 ppm be shipped off-site for disposal at a secure facility.

This ROD Amendment does not change the 1990 cleanup level for any part of the Site. The only modification is the off-site disposal, rather than on-site treatment, of materials with PCB concentrations greater than 10 ppm associated with the St. Lawrence and Raquette Rivers and the soils excavated during installation of site-wide groundwater controls of those materials. The specific modifications to the OUL ROD are based on several factors. EPA determined that the most prudent approach would be to prioritize the Site in terms of areas of environmental sensitivity in OUL, while at the same time trying to resolve the more contentious issues related to OU2. The greatest health threat posed by the Site is the consumption of contaminated fish and EPA therefore determined that remediation related to the St. Lawrence and Raquette Rivers was a priority. EPA's rationale was similar for the inclusion of groundwater in this ROD Amendment.

The selection of off-site disposal rather than on-site treatment was also based on several factors. EPA determined that the operation of a thermal treatment facility and issues related to emissions from the treatment unit would do little to alleviate the community's concerns regarding overall exposure to PCBs. In addition, due to changes in market conditions, there have been reductions in the costs of off-site disposal, further enhancing the value of this alternative.

EPA believes that the selected amendments to the OUL ROD effectively balance community concerns with the costs of this project, while achieving protectiveness of human health and the environment.

III. HIGHLIGHTS OF COMMUNITY PARTICIPATION

In August 1998, EPA released the Proposed Plan, which described proposed changes to the remedy selected by EPA in its 1990 ROD. The Proposed Plan was developed by EPA in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the St. Regis Mohawk Tribe (SRMT).

The Proposed Plan, along with other technical supporting documents, was made available to the public at information repositories maintained at EPA Region II's office in New York City, at the Massena Public Library, and at the SRMT Health Services Building, located in Hogansburg, New York. The Proposed Plan was

mailed to approximately 400 citizens on EPA's mailing list for the Site.

EPA held a public comment period from August 21, 1998 through October 13, 1998. The public comment period, which was scheduled to end on October 5, 1998, was extended an additional eight days to October 13, 1998, at the request of the Environment Division of the SRMT. A public notice announcing the public comment period, public meeting, and availability of the Proposed Plan was published in the *Courier-Observer* daily newspaper on August 21, 1998, and in the *Indian Times* and *People's Voice* newspapers on August 28, 1998. A public notice announcing an extension of the public comment period was published in the *Courier-Observer* newspaper on October 6, 1998. EPA also issued a Public Service Announcement, which ran from September 10 through 17, 1998, on local radio stations to publicize the public meeting. In addition, on August 20, 1998, EPA issued a press release to regional media in the United States and Canada.

EPA held a public meeting on Thursday, September 17, 1998, at the Akwesasne Housing Authority Auditorium, Route 37, Hogansburg, New York. Approximately 33 people attended. During the meeting, representatives from EPA answered questions and received comments on the Proposed Plan. The proceedings of the meeting were recorded in a transcript, which has been placed in the information repositories designated for the Site.

Prior to the public meeting on September 17, 1998, representatives from EPA met with representatives from the St. Regis Mohawk Tribal Council as well as the SRMT Environment Division to brief them on the Proposed Plan.

In addition to comments received at the public meeting, EPA received written comments during the public comment period. EPA's responses to these comments, both oral and written, are included in the attached Responsiveness Summary.

The Administrative record file, containing the information upon which the modification to the original remedy is based, is available at the following locations:

U.S. Environmental Protection Agency, Region II
290 Broadway, 18th Floor
New York, New York 10007-1866
212-637-3263
Monday - Friday: 9:00 AM to 4:30 PM

Massena Public Library
41 Glenn Street
Massena, New York 13662
315-769-9914
Monday and Friday: 9:30 AM to 5:00 PM
Tuesday through Thursday: 9:30 AM to 9:00 PM

St. Regis Mohawk Tribe Environment Division
Health Service Building
Hogansburg, New York 13655
By appointment: 518-358-3141

IV. DESCRIPTION OF THE ALTERNATIVES

CERCLA requires that each selected remedy be protective of human health and the environment, be cost-effective, comply with other laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, CERCLA includes a preference for remedies which utilize treatment as a principal element to significantly reduce the toxicity, mobility, or volume of the hazardous substances.

A summary of the original remedy and the proposed changes evaluated in the Proposed Plan is presented below. The time frames listed below reflect the total time required to implement the remedy, although the time frames do not include the time required to design the remedy. The costs listed below represent only the costs of on-site treatment or off-site disposal and not the common costs of the remedy such as dredging or excavation.

Due to the fact that this ROD Amendment changes very specific aspects of the 1990 ROD, only the relevant portions of the 1990 ROD will be described below. Table 1 provides a comparison of the relevant portions of the 1990 ROD to the modifications in this ROD Amendment.

**ALTERNATIVE I. - RELEVANT PORTIONS OF EXISTING REMEDY AS SELECTED
IN THE 1990 RECORD OF DECISION**

Dredging and Excavation of St. Lawrence River and Raquette River
Sediments and Soils, and Soils Associated with the Installation of
the Site-Wide Groundwater Controls/On-Site Treatment of Sediments
and Soils with PCB Levels Exceeding 10 ppm /On-Site Landfilling of
Treated and Untreated Sediments and Soils with PCB Concentrations
Less Than or Equal to 10 ppm PCBs

St. Lawrence River

The 1990 ROD had three major components involving the St. Lawrence River: dredging of sediments greater than 1 ppm PCBs; treatment of dredged materials with PCB concentrations greater than 10 ppm; and, on-site containment of treated and untreated sediments with concentrations of PCBs less than or equal to 10 ppm.

The 1990 ROD states, "[a]ll PCB contaminated sediments in the hotspots will be removed given the technological limitations associated with dredging." This effort was undertaken in 1995 and resulted in the removal of approximately 10,230 cubic yards (cy) of PCB-contaminated sediments (Table 2). All dredged materials with PCB concentrations greater than 10 ppm were to be treated to levels below 10 ppm, and the treated and untreated sediments with PCB concentrations of 10 ppm and less were to be disposed of on GM property and covered with a vegetated soil cap meeting New York State and Toxic Substances Control Act (TSCA) requirements for a chemical waste landfill.

The estimated cost for on-site treatment and disposal of the St. Lawrence River sediments is \$4.6 million. This cost estimate does not include the cost for dredging of the St. Lawrence River, which was approximately \$7 million.

Raquette River

The 1990 ROD selected a remedy for the Raquette River which had the same three components as the selected remedy for the St. Lawrence River (listed above). The ROD states, "[a]ll PCB-contaminated sediments in the hotspots will be removed given the technological limitations associated with dredging." Sampling conducted after the 1990 ROD was issued indicated that bank soils are also contaminated with PCBs and must be excavated. All dredged materials or excavated bank soils with concentrations of PCBs greater than 10 ppm (approximately 2,600 cy) were to be treated to levels below 10 ppm. These estimated volumes are likely to change

based on sampling during the remedial design of the Raquette River dredging and excavation.

The untreated sediments which had initial concentrations of PCBs less than 10 ppm (approximately 1,400 cy) as well as the treated sediments were to be disposed of on GM property and covered with a vegetated soil cap meeting New York State and TSCA requirements for a chemical waste landfill. The estimated cost for treatment of the Raquette River sediments and soils is \$1.2 million. This estimate does not include the cost of the excavation/dredging of Raquette River sediments/soils, which is common to both alternatives.

Groundwater Control System Soils

The soils that would be excavated during construction of the groundwater remedy were not specifically described in the 1990 ROD. Such soils, which have concentrations of PCBs greater than 10 ppm are, however, considered to fall under the category of contaminated soils from "miscellaneous areas" which were described in the 1990 ROD. The 1990 ROD indicated that contaminated miscellaneous site soils with PCB concentrations greater than 10 ppm were to be excavated and treated on-site. The treated soils and untreated soils with PCB concentrations less than or equal to 10 ppm were to be contained on GM property and covered with a vegetated soil cap meeting New York State and TSCA requirements for a chemical waste landfill.

The anticipated volume of soils to be excavated during construction of groundwater controls is approximately 22,700 cy. However, this volume estimate is dependent upon the type and configuration of the groundwater control system. Without a complete engineering design and additional data, an accurate volume cannot be determined. EPA, NYSDEC, and the SRMT are currently in the process of reviewing a sampling plan which, when implemented, will help determine the type of groundwater control system to be used at the Site and the volume of materials to be excavated. The volume estimated in this ROD Amendment is based on sampling data collected for the Preliminary Design and includes soils from the downgradient "footprint" of a cutoff wall (12,900 cy) as well as additional soils at the base of the landfill, or "toe-of-slope", near the mouth of Turtle Creek which will be excavated (9,800 cy). Based on current data, it has been estimated that approximately 5,100 cy of soil will contain concentrations of PCBs which are greater than 10 ppm (Table 2).

The cost for treatment (as required by the 1990 ROD) for soils excavated during the installation of the site-wide groundwater

controls based on the volumes listed above is estimated to be \$2.4 million.

The approximate total cost for treating the materials dredged/excavated from the St. Lawrence River, Raquette River, and soils excavated during construction of the site-wide groundwater controls with PCB concentrations greater than 10 ppm is \$8.2 million. The time estimated for implementation of the work for these aspects of the 1990 remedy is approximately 2-3 years. These estimated costs and time frames reflect only the treatment of the materials with PCB concentrations greater than 10 ppm and do not include the cost or time frames for the excavation or dredging of the materials, which are common to both alternatives (Table 3).

ALTERNATIVE II. - MODIFIED REMEDY AS SELECTED IN THIS RECORD OF DECISION AMENDMENT

Dredging and Excavation of the St. Lawrence River and Raquette River Sediments and Soils, and Soils Associated with the Installation of the Site-Wide Groundwater Controls/Off-Site Disposal of Sediments and Soils with PCB Levels Exceeding 10 ppm/On-Site Landfilling Sediments and Soils with PCB Concentrations Less Than 10 ppm PCBs

This alternative is identified as the selected remedy in this ROD Amendment. It does not modify the remediation goals selected in the 1990 ROD but deals only with how the sediments/soils are handled after they are excavated or dredged. Soils and sediments with PCB concentrations greater than 10 ppm which have been removed from the St. Lawrence River and will be removed from the Raquette River, and soils excavated during the installation of site-wide groundwater controls, will be disposed of off-site rather than treated on-site. Under this alternative, no treatment residuals will be contained on-site.

St. Lawrence River

This alternative includes the elimination of on-site treatment and on-site storage of treatment residuals of materials dredged from the St. Lawrence River. Sediments which have been dredged from the St. Lawrence River with concentrations of PCBs greater than 10 ppm will be disposed of off-site in a permitted TSCA facility. The estimated cost for the off-site disposal of the approximately 10,230 cy of sediments dredged from the St. Lawrence River which have PCB concentrations greater than 10 ppm is \$2.3 million.

Raquette River

The Raquette River contaminated sediments and soils will be dredged/excavated to the remedial goals established in the 1990 OU1 ROD. The cleanup levels for the Raquette River sediments and soils remain the same. The dredged/excavated materials with PCB concentrations greater than 10 ppm (estimated to be 2,600 cy) will be disposed of off-site in a secure facility. Sediments and soils with PCB concentrations between 10 and 50 ppm will be disposed of off-site in a permitted RCRA Subtitle D landfill. Sediments and soils with PCB concentrations greater than 50 ppm will be disposed of off-site in a permitted TSCA facility. The remaining 1,400 cy of materials with PCB concentrations of 1-10 ppm would be contained on-site in the East Disposal Area (EDA) and covered with a multi-layer cap meeting New York State and TSCA requirements for a chemical waste landfill.

The estimated cost for the off-site disposal of approximately 2,600 cy of soils/sediments with PCB concentrations greater than 10 ppm is \$700,000. This cost represents only the incremental off-site disposal cost of the sediments and soils and does not include the costs for excavation/dredging of the sediments/soils, which are common to both alternatives.

Groundwater Control System Soils

The soils with PCB concentrations greater than 10 ppm excavated during the construction of the site-wide groundwater control system will be shipped off-site for disposal at a secure approved facility. This includes an area of contamination at the landfill toe-of-slope near the mouth of Turtle Creek (9,800 cy), which is now planned for excavation in response to concerns expressed by the St. Regis Mohawk Tribal Council. Soils with PCB concentrations between 10 and 50 ppm will be disposed of off-site in a permitted RCRA Subtitle D landfill. Soils with PCB concentrations greater than 50 ppm will be disposed of off-site in a permitted TSCA facility. The remaining soil with PCB concentrations less than or equal to 10 ppm (approximately 17,600 cy) will be contained on-site in the EDA under a multi-layer cap meeting New York State and TSCA requirements for a chemical waste landfill. Although these volume estimates will likely change based on future sampling events, this ROD Amendment deal only with what happen to the soils after they are excavated during the installation of the groundwater control system. The OU1 ROD requirements for the installation of a groundwater control system and groundwater remediation goals are not changed. The type and configuration of groundwater controls and more accurate estimates

of the volume of soil to be shipped off-site for disposal will be determined during the remedial design phase.

The estimated cost for the off-site disposal of the estimated 5,100 cy of soils with PCB concentrations greater than 10 ppm to be removed during the installation of site-wide groundwater controls is \$1.4 million. This cost reflects only the cost for off-site disposal of the excavated soils and does not include the costs of the installation of a groundwater control system which is common to both alternatives.

The total estimated cost for the off-site disposal of all sediments and soils removed from the St. Lawrence River, Raquette River, and soils excavated during the construction of site-wide groundwater controls with PCB concentrations greater than 10 ppm is \$4.4 million (Table 3).

V. EVALUATION OF ALTERNATIVES

In accordance with the NCP, this section presents a detailed analysis of the alternatives outlined in the preceding section. The detailed analysis consists of an assessment of the two alternatives against the NCP's nine evaluation criteria and a comparative analysis focusing upon the relative performance of each alternative against those criteria.

The following "threshold criteria" must be satisfied by an alternative in order to be eligible for selection:

1. *Overall protection of human health and the environment* addresses whether or not a remedy provides adequate protection and describes how risks posed through each exposure pathway (based on a reasonable maximum exposure scenario) are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls; and,
2. *Compliance with applicable or relevant and appropriate requirements (ARARs)* addresses whether or not a remedy would meet all of the applicable or relevant and appropriate federal and state environmental statutes and requirements (*i.e.*, those federal or state laws that specifically address a hazardous substance, pollutant or contaminant, remedial action or other circumstance found at a CERCLA site, or which address problems or situations similar to those encountered at a site that their use is well suited to the site) or provide grounds for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify major trade-offs between alternatives:

3. *Long-term effectiveness and permanence* refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once the cleanup goals have been met;
4. *Reduction of toxicity, mobility, or volume through treatment* is an evaluation criterion which addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce the toxicity, mobility, or volume of the hazardous substances at a site;
5. *Short-term effectiveness* addresses the period needed to achieve protection and any adverse impacts on human health and the environment that be may posed during construction and implementation periods until the cleanup goals are achieved.
6. *Implementability* refers to the technical and administrative feasibility of a remedy, including the availability of various services and materials required during its implementation; and,
7. *Cost* includes estimated capital, operation and maintenance costs, and the present worth cost.

The following "modifying" criteria are considered fully after the formal public comment period is completed:

8. *State acceptance* indicates whether, based on its review of the RI/FS and the proposed plan, the State supports, opposes and/or has identified any reservations with respect to the preferred alternative; and,
9. *Tribal/community acceptance* refers to the Tribe's and the public's general response to the alternatives described in the proposed plan and the RI/FS reports; factors of tribal/community acceptance discussed include support, reservation, and opposition by the Tribe/community.

A comparative analysis of the two alternatives based upon these evaluation criteria follows below. The evaluation of Alternative II, the modified remedy, applies also to the contingency remedy which is described in more detail in the Declaration Statement and in Section VIII. Since the contingency

remedy includes the same off-site disposal options as described in Alternative II, the results of the evaluation are the same.

1. Overall Protection of Human Health and the Environment

Both remedies (existing and modified) are considered to be protective of human health and the environment. Both remedies require the removal of contaminants to site-specific risk-based cleanup levels established in the 1990 ROD and eliminate exposure to PCBs, thereby minimizing availability to aquatic life and preventing migration into the groundwater. The existing remedy employs on-site treatment of higher levels of contamination with on-site landfilling and capping of lesser contaminated materials.

The modified remedy will combine off-site disposal of the higher contaminated sediments with on-site disposal and capping of low-level contaminants. Off-site disposal will consist of landfilling at a secure facility those sediments and soils with PCB concentrations greater than 10 ppm.

The consolidation of sediments and soils with PCB concentrations less than 10 ppm under a multi-layer cap in the EDA, which is included in both alternatives, will effectively isolate them from the environment. Operation and maintenance of the groundwater control system will be performed as well as monitoring for the entire Site to ensure that the engineering controls continue to be effective in containing contaminants in the EDA over time.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)

ARARs are those Federal, State, or Tribal environmental and public health laws and regulations that apply to remedial activities at a site. There are three classifications of ARARs: *chemical-specific*, which are health- or risk-based concentration limits of chemicals which may be found in, or discharged to, the ambient environment; *location-specific*, which are restrictions placed on the concentration of a hazardous substance or the conduct of activities solely because of the specific geographical location in which they occur; and *action-specific*, which are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous substances, pollutants or contaminants.

Both the existing remedy and the modified remedy comply with ARARs.

The principal action-specific ARARs for the Site include the requirements of TSCA, the federal law that regulates PCBs. TSCA and its regulations require that dredged sediments with concentrations of PCBs greater than or equal to 50 ppm be either incinerated, landfilled in a TSCA-approved chemical waste landfill, or disposed of by another method approved by EPA. Both the existing remedy and the modified remedy comply with TSCA treatment and disposal requirements. All necessary approvals will be obtained prior to disposal to ensure sediments and soils meet the facility's permit restrictions.

Another action-specific ARAR is RCRA, the federal law which regulates the management of hazardous and solid waste. PCB-contaminated materials are not considered a hazardous waste under RCRA. However, New York State regulates PCB-contaminated materials with concentrations greater than 50 ppm as a hazardous waste. Both remedies comply with all relevant and appropriate RCRA requirements and/or the corresponding New York State requirements for identification and transportation of hazardous waste.

Another action-specific New York State ARAR that is applicable to the alternatives being considered for the Site is the State Pollutant Discharge Elimination System (SPDES) which governs the discharge of water into the St. Lawrence River. Under both the proposed and existing remedies, all water that is removed from sediments would be treated and discharged to the St. Lawrence River in compliance with SPDES requirements.

The SRMT has identified ARARs which are applicable within the Mohawk Nation of Akwesasne. This ROD Amendment does not propose any changes to the selected remedy for Tribal lands. Tribal ARARs will continue to apply with respect to work performed on Tribal lands.

Federal and New York State requirements for air emissions are action-specific ARARs or guidance (6 NYCRR Parts 200,201, 211,219 and 257; NYS Air Guide-1) which would be met. These standards apply to and would be met by both the original and modified remedy.

3. Long-Term Effectiveness and Permanence

In general, disposal remedies provide a lesser degree of long-term effectiveness and permanence in remediating contamination when compared to treatment alternatives which destroy or immobilize contaminants. The 1990 ROD would result in treatment of material whereas the modified remedy would not include treatment. Off-site landfilling does, however, provide for permanent removal of contaminants from the Site and provide for long-term management in a permitted, secure, monitored location where adequate and reliable

controls are provided. Therefore, off-site landfilling of PCBs with concentrations above 10 ppm and on-site containment of materials with PCB concentrations of 10 ppm and less under a multi-layer cap meeting New York State and TSCA requirements for a chemical waste landfill would reliably contain the contaminated materials over time.

4. Reduction in Toxicity, Mobility, or Volume Through Treatment

The 1990 ROD selected the use of on-site treatment by thermal desorption to reduce the toxicity, mobility, and volume of the sediments and soils removed from the St. Lawrence and Raquette Rivers and soils excavated during the installation of site-wide groundwater controls. The modified remedy does not employ treatment to address the contaminated material. Treatment by thermal desorption would provide better reduction of the waste's toxicity, mobility, and volume because of the removal and eventual destruction of PCBs. However, disposal of these materials in a secure landfill effectively reduces the mobility of the contaminants without treatment. Although the modified remedy does not employ treatment for contaminated materials it is important to note that the remedy is in compliance with the aforementioned PCB Policy which generally does not require treatment for materials with PCB concentrations of less than 500 ppm for industrial sites.

5. Short-Term Effectiveness

In general, effective alternatives that can be implemented quickly with little risk to human health and the environment are favored under this criterion. For either remedy, there would be short-term impacts which have to be addressed when performing the dredging or excavation. However, the potential short-term impacts of the modified remedy would be significantly lower than for the original remedy. The modified remedy would be implemented in approximately 6 months to a year, rather than the 2-3 years originally planned for the procurement, mobilization, and operation of the thermal desorption treatment system. These time estimates only reflect the time needed for off-site disposal or on-site treatment of materials after they are excavated or dredged and do not include the time needed for excavation or dredging, which remains the same.

Although the treatment unit would be operated in compliance with applicable regulations, potential air quality impacts from the operation of the thermal desorber are possible although they would be mitigated. These risks would be eliminated by using off-site disposal. Further, although appropriate controls and safety measure would be applied to minimize potential exposure to on-site workers

under either remedy, fewer workers would be required to handle the sediments and soils for off-site disposal as compared to on-site treatment, thereby reducing potential risks to on-site workers. However, there will be potential short-term risks associated with transporting PCB-contaminated sediments to an off-site landfill. Those risks would be minimized by employing appropriate health and safety measures.

All short-term risks to Site workers would be addressed by compliance with a health and safety plan. An air monitoring plan would be implemented for protection of the community under both remedies.

6. Implementability

Both the 1990 ROD and the revised remedy are implementable from an engineering and technical standpoint. Off-site landfilling is more readily implemented because the issues of procuring, mobilizing, and operating the treatment system are avoided. The direct load-out of sediments from the dewatering operations or from the temporary stockpile area and the availability of landfill capacity make the off-site land disposal option highly implementable.

7. Cost

The capital costs for the existing and modified remedy are presented above. Typically, a present worth analysis is performed to evaluate expenditures that occur over different time periods by discounting all future costs to a common base year, usually the current year. This allows the cost of the remedial action alternatives to be compared on the basis of a single figure representing the amount of money that, if invested in the base year and spent as needed, would be sufficient to cover the costs associated with the remedial action over its planned life.

In the case of the existing and modified remedy, the present worth analysis is not applicable since there is only a one-time capital investment. There are no long-term monitoring costs since the waste would either be destroyed (1990 ROD) or sent for off-site disposal (ROD Amendment). Any materials left on-site would have PCB concentrations less than 10 ppm. The property will, however, be monitored as long as contaminants remain on-site but the monitoring would not be specifically for the materials with PCB concentrations less than or equal to 10 ppm. Since the costs of monitoring apply to the entire Site, they are not affected by this change and therefore not included in this comparison analysis.

The capital cost for the relevant portions of the original remedy, which includes the on-site treatment of materials dredged or excavated from the St. Lawrence and Raquette Rivers and site-wide groundwater controls, is approximately \$8.2 million. The capital cost for the off-site disposal of those materials at an approved facility is \$4.4 million. This represents a decrease of \$3.8 million. Based on these estimates, off-site disposal is significantly less expensive to implement (Table 3).

8. State Acceptance

The State of New York concurs with EPA's preferred alternative.

9. SRMT & Community Acceptance

The response to the modified remedy from the SRMT and the community, as received during the public comment period (including the public meeting), is contained in the Responsiveness Summary which is included in this ROD Amendment.

In general, the majority of the comments received from the public indicate support for this remedy. Some of the comments received from the public indicate that they support off-site disposal, but at a higher level such as 50 or 500 ppm PCBs.

The SRMT only supports the portion of the remedy related to the off-site disposal of St. Lawrence River sediments. SRMT has indicated that they would support the entire modified remedy if the miscellaneous site soils, which were excavated in 1995 and stockpiled in the EDA, were included in the selected remedy. The ROD Amendment does not provide for the re-evaluation of miscellaneous site soils in the selected remedy.

VI. SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the alternatives, and the comments received during the public comment period, EPA has determined that Alternative II is the most appropriate remedy for the Site.

As described above, Alternative II, which is the remedy selected in this ROD Amendment, is consistent with the remediation goals set forth in the 1990 ROD. Based on evaluation of the two alternatives, EPA has determined that the remedy as selected in the 1990 ROD should be changed to allow for the off-site disposal, rather than on-site treatment, of materials excavated or dredged from the St. Lawrence and Raquette Rivers and soils excavated

during the installation of site-wide groundwater controls. All dredged or excavated materials with PCB concentrations less than or equal to 10 ppm will be contained on-site in the EDA, in keeping with the original 1990 ROD. All dredged or excavated materials with PCB concentrations between 10 ppm and 50 ppm will be transported off-site to a RCRA Subtitle D landfill. All materials with PCB concentrations above 50 ppm will be transported off-site to a TSCA permitted landfill. The cleanup goals set by the 1990 ROD have not changed.

VII. STATUTORY DETERMINATIONS

Under CERCLA and the NCP, EPA's responsibility at Superfund sites is to undertake remedial actions that achieve adequate protection of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences that the selected remedy must address. Section 121 of CERCLA specifies that when complete, the selected remedial action for the site must comply with ARARs established under federal and state environmental laws unless a statutory waiver is justified. The selected remedy must also be cost-effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes as their principle element. The following sections discuss how the selected remedy meets these statutory requirements. Since the contingency remedy contains the same elements as the selected remedy, these statutory determinations apply also to the contingency remedy.

1. Protection of Human Health and the Environment

The modified remedy maintains a comparable level of protection of human health and the environment as the original remedy set forth in the 1990 ROD. The modified remedy requires the removal of contaminants to site-specific risk-based cleanup levels established in the 1990 ROD and eliminates exposure to PCBs, thereby minimizing availability to aquatic life and preventing migration into the groundwater. The removal of contaminated sediments and soils to the established cleanup goals will mitigate the health threats posed at the Site, primarily the ingestion of fish caught by local residents and fisherman.

Off-site disposal will consist of landfilling at a secure facility those sediments and soils with PCB concentrations greater than 10 ppm. The consolidation of sediment and soils with PCB

concentrations less than 10 ppm under a multi-layer cap in the EDA will effectively isolate those materials from the environment. Operation and maintenance of the groundwater control system will be performed as well as monitoring for the entire Site to ensure that the engineering controls continue to be effective in containing contaminants in the EDA over time.

2. Compliance with Applicable, or Relevant and Appropriate Requirements (ARARs)

The original analysis with respect to ARARs, as contained in the 1990 ROD, held that the original remedy did comply with all federal and state ARARs.

The key elements of the 1990 ROD which are changed in the modified remedy also comply with state and federal ARARs. The 10 ppm level established for the off-site disposal of PCBs is in compliance with the federal and New York State laws for regulating PCBs. In compliance with TSCA, sediments having PCB levels of 50 ppm and greater will be transported off-site and disposed of in a TSCA-permitted chemical waste landfill. All necessary approvals will be obtained prior to disposal to ensure the dredged sediments and excavated soils meet the facility's permit restrictions.

The modified remedy will comply with applicable or relevant and appropriate requirements and/or the corresponding New York State hazardous waste requirements for the identification and transportation of a hazardous waste.

3. Cost-effectiveness

Cost-effectiveness is an important component used in the balancing of the evaluation criteria. The capital cost for the relevant portions of the original remedy which includes the on-site treatment of materials dredged or excavated from the St. Lawrence and Raquette Rivers and site-wide groundwater controls is approximately \$8.2 million. The capital cost for the off-site disposal of those materials at an approved facility is \$4.4 million. This represents a decrease of \$3.8 million. Based on these estimates, and the relatively equivalent effectiveness of the two alternatives, off-site disposal is significantly more cost-effective.

4. Utilization of Permanent Solutions and Alternative Treatment Technologies (or Resource Recovery Technologies) to the Maximum Extent Practicable

EPA believes that the modified remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable after consideration of community concerns, cost and EPA policies and regulations.

5. Preference for Treatment as a Principal Element

In the case of the original remedy, the preference for treatment is satisfied with higher levels of contamination (PCBs exceeding 10 ppm) being treated on-site through thermal desorption. For the modified remedy this preference is not met for those materials. The groundwater, however, will be treated under the original ROD.

VIII. DOCUMENTATION OF SIGNIFICANT CHANGES

There is one significant change from the preferred alternative, as presented in the Post-Decision Proposed Plan released to the public on August 31, 1998.

As a result of further discussions with the SRMT and other involved government agencies, this ROD Amendment also identifies a contingency remedy. This contingency remedy would expand the scope of this ROD Amendment to include other contaminated sediments and soils, located on Tribal lands, beyond secure (i.e., fenced) areas of GM property. These areas were previously defined in the OUI ROD.

The implementation of this change is contingent upon EPA or GM securing access to those contaminated areas defined in the OUI ROD which lie on Tribal lands. As described in the OUI ROD, Tribal ARARs will apply to the sediments and soils located on Tribal properties. The excavated soils and sediments (approximately 19,100 cy) would be disposed of in the same manner as those materials that are the subject of this ROD Amendment.

As such, sediments and soils with PCB concentrations greater than 10 ppm (approximately 4,500 cy) would be shipped for off-site disposal. Materials with PCB concentrations greater than 50 ppm would be shipped for off-site disposal at a permitted TSCA facility; and, materials with PCB concentrations between 10 and 50 ppm would be shipped to a permitted RCRA Subtitle D facility. This estimated cost for off-site disposal of materials with PCB concentrations greater than 10 ppm is \$1.2 million. This compares

to an estimated \$2.0 million for on-site treatment of those same materials.

All necessary access approvals would be obtained prior to the initiation of any work in contaminated areas located on Tribal lands.

Site Location Map

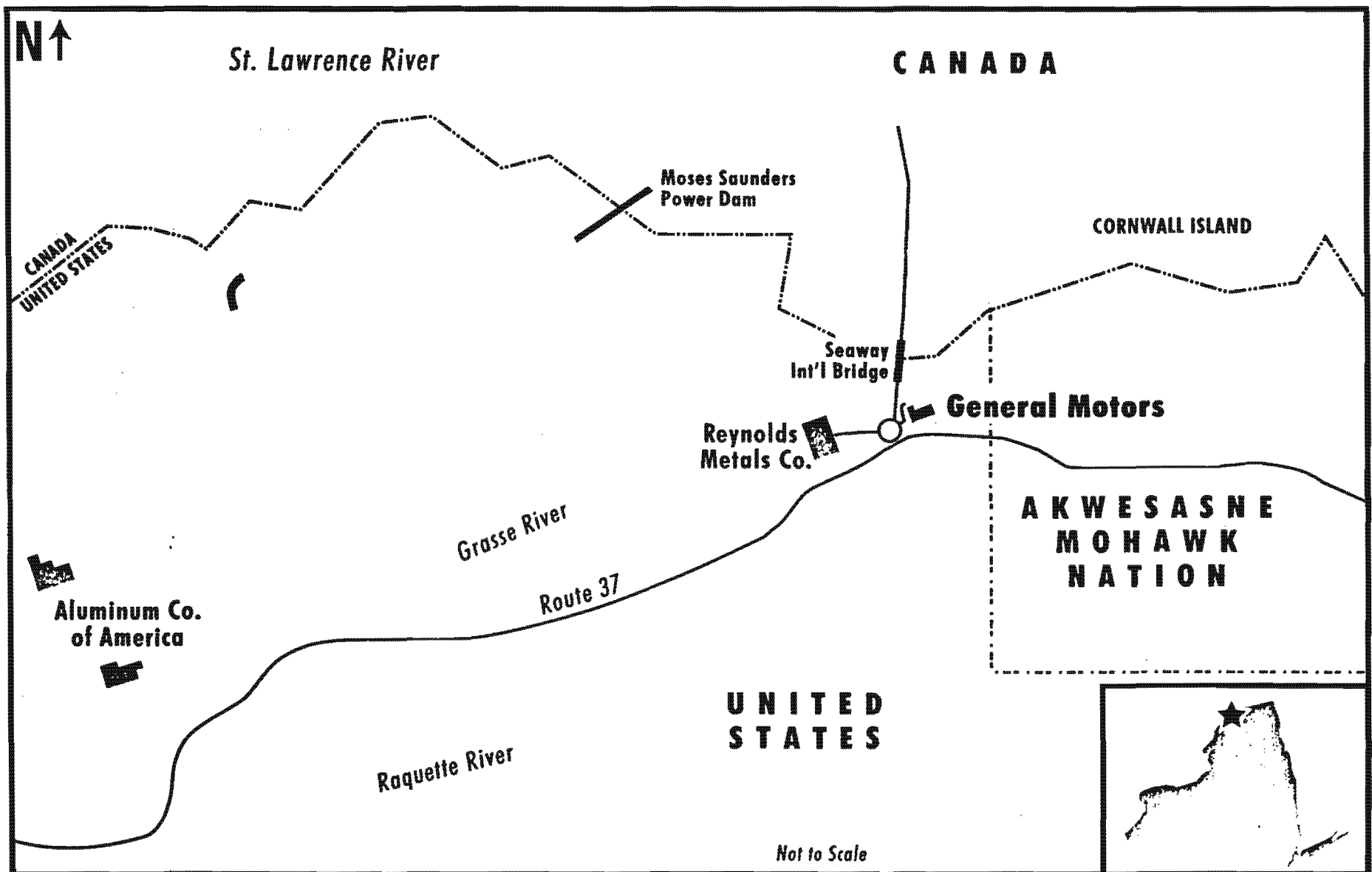


Figure 1

PCB Contamination in the General Motors Site

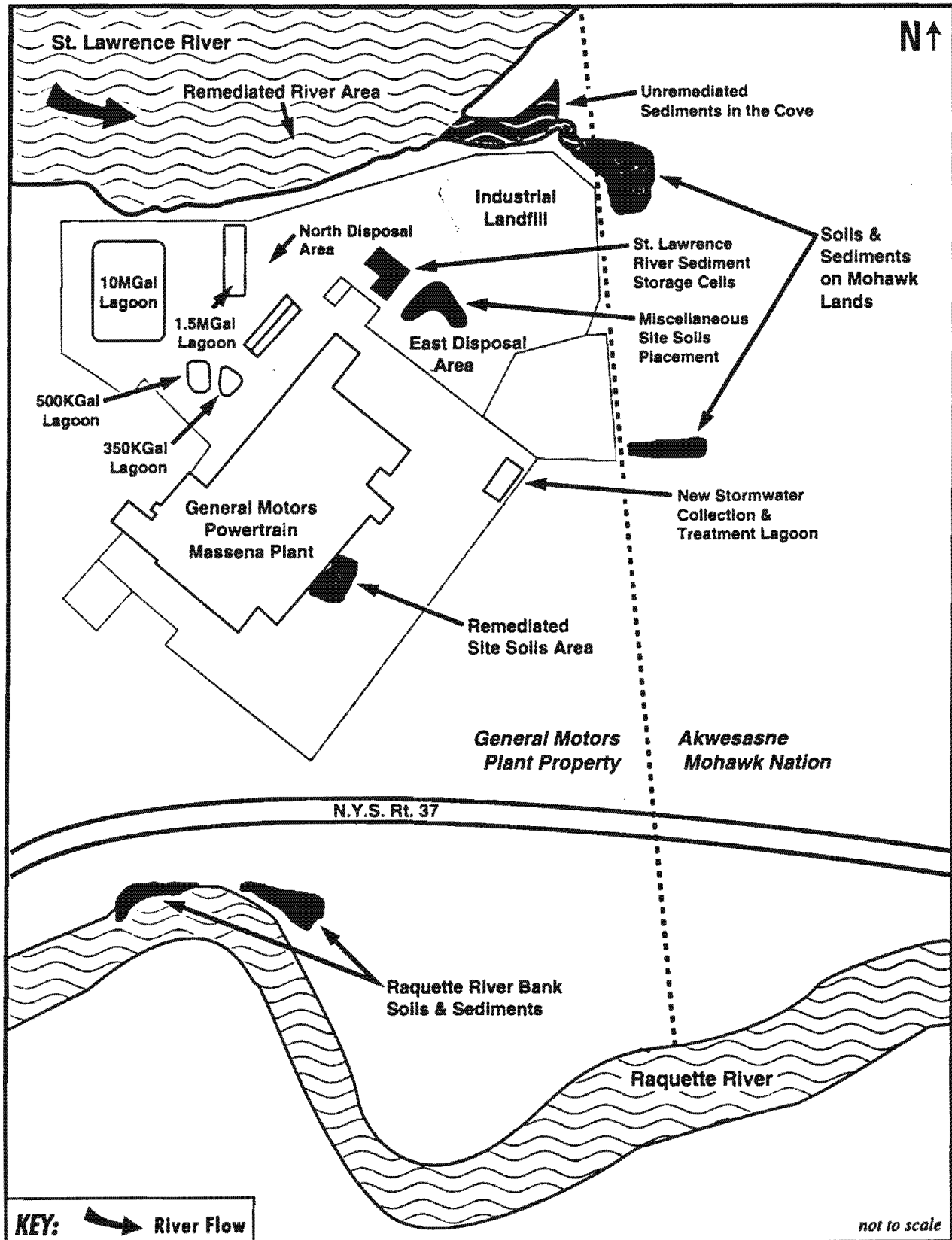


Figure 2

Table 1**Comparison of ROD Amendment
to 1990 Selected Remedy**

1990 Remedy	ROD Amendment
Dredge the St. Lawrence River to cleanup goals	<i>No change*</i>
Treat St. Lawrence River sediments with >10 ppm PCBs	Off-site disposal of dredged sediments with >10 ppm PCBs
Dredge Raquette River and excavate riverbank soils to cleanup goals	<i>No change</i>
Treat Raquette River sediments and soils with >10 ppm PCBs	Off-site disposal of sediments and soils with >10 ppm PCBs
Down gradient groundwater recovery and treatment	<i>No change</i>
Treatment of soils >10 ppm PCBs excavated during installation of the groundwater cutoff wall	Offsite disposal of excavated soils with >10 ppm PCBs
*The dredging of the St. Lawrence River was undertaken in 1995 and was successful in removing the mass of PCBs from the River.	

Table 2 Volume Estimates (cubic yards) and Contaminant Levels			
Levels	St. Lawrence River	Raquette River	Groundwater Cutoff Wall Excavation
0-10 ppm PCBs	n/a	1,400	17,600
10-50 ppm PCBs	n/a	1,760	2,600
>50 ppm PCBs	10,230	840	2,500

Table 3 Costs Associated with 1990 ROD and 1998 ROD Amendment		
Area of Site and volume > 10 ppm PCB (cy)	1990 ROD (\$M)	ROD Amendment
St. Lawrence (10,230 cy)	\$ 4.6	\$ 2.3
Raquette River (2,600 cy)	\$ 1.2	\$ 0.7
Groundwater Cutoff wall (4,900 cy)	\$ 2.3	\$ 1.3
TOTAL	\$8.1	\$4.3

APPENDIX 1

INDEX FOR THE ADMINISTRATIVE RECORD

GENERAL MOTORS - CENTRAL FOUNDRY DIVISION SUPERFUND SITE

MASSENA, NEW YORK

GENERAL MOTORS CENTRAL
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3.0 REMEDIAL INVESTIGATION

3.4 Remedial Investigation Reports

- P. 008 2018A- Report: Final Report, SoilTech Anaerobic Thermal
008 2471 Process Treatability Study, prepared on behalf of
General Motors - Powertrain Division, Massena, New
York, July 1994.
- P. 008 2472- Report: Treatability Study Report, General Motor
009 0063 Powertrain, Massena Superfund Site, Massena, New
York, prepared by Hughes Environmental Systems, Inc.
And BBL Environmental Services, Inc., August 1994.
- P. 009 0064- Report: B.E.S.T Bench-Scale Treatability, Final
009 0271 Report General Motors Site for Hughes Environmental
Systems, Inc., Remediation Project Office, Massena,
New York, Purchase Order No. 29-8618S, prepared by
Resources Conservation Company, August 1994. (Note:
Pages 009 0267 - 009 0271 are CONFIDENTIAL. These
pages can be located in the Superfund Records Center
at 290 Broadway, 18th Floor, N.Y., N.Y 10007-1866.)

3.5 Correspondence

- P. 009 0272- Letter to Ms. Carson, Chief, New York/Caribbean
009 0634 Superfund Branch, Emergency and Remedial Response
Division, U.S. Environmental Protection Agency -
Region II, from Mr. Douglas C. Premo, GM Project
Coordinator, GM Powertrain Massena Plant, re:
General Motors Powertrain Superfund Site, Massena,
New York, Administrative Order, U.S. EPA Index No.
II CERCLA-20207, Request for Reevaluation of
Treatment Threshold, June 10, 1994. Attachments:
Massena Superfund Program Distribution List -
Government Agencies; Summary of Information
Supporting the Modification of the OUI Treatment
Threshold; St. Lawrence River ("SLR") Supporting

Information; Immunoassay Field Screening Supporting
Information; North Disposal Area Supporting
Information; Inactive Lagoons Supporting
Information; St. Regis Mohawk Tribal Property
Supporting Information; Miscellaneous Site Soils
Supporting Information; Raquette River Area
Supporting Information.

P. 009 0635- Memorandum from Michael J.R. Shannon, Ph.D.,
009 0761 Manager, PCB Program, Envirogen, re: Bench-
scale Treatability Draft Report, July 18, 1994.
Attachment: Report: PCB Remediation Studies:
Final Report, Submitted to BBL Environmental
Services, Inc. (BBLES), Syracuse, New York, and
Hughes Environmental Systems, Inc. (HESI), c/o GM
Power Train Division, P.O. No. 29-8616S, Massena,
New York, Submitted by Envirogen, Inc., July
18, 1994.

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5.0 RECORD OF DECISION

5.2 Amendments to the Record of Decision

- P. 500001- Memorandum to General Managers, Plant Managers,
500002 and Purchasing Agents, from J.F. Smith, Jr.,
President, General Motors Corporation, re:
GM/USPCI Waste Management Contract, August 5,
1992.
- P. 500003- Memorandum to Mr. J. Detor, BBL Environmental
500010 Services, Inc., from Mr. R. Boelter, BBL
Environmental Services, Inc., re: Volume
Calculations, Assumptions made for Volume
Calculations for All GM Massena Management Units,
June 23, 1994.
- P. 500011- Letter to Ms. Lisa P. Jackson, Chief, New
500030 York/Caribbean Superfund Branch, U.S. EPA, Region
II, from Mr. Douglas C. Premo, GM Project
Coordinator, Massena Plant, re: General Motors -
Massena Superfund Site, Massena, N.Y., EPA Orders
Index No. II CERCLA-20207 and 20215 -- Evaluation
of Off-Site Disposal Alternatives, November 28,
1995. (Attachment: Memorandum to Mr. Jim
Hartnett, Blasland, Bouck & Lee, Inc., from Mr. J.
Paul Doody, P.E./Mr. David W. Knutsen, re:
Preliminary Evaluation of Soil Washing at GM -
Massena Site, November 22, 1995.)
- P. 500031- Memorandum to Mr. Jim Hartnett, BBL Environmental
500033 Services, Inc., from Mr. Richard G. Boelter, BBL
Environmental Services, Inc., re: Volume
Calculation, Revisions to GM Massena, Management
Units, July 18, 1997.

P. 500034- Letter to Mr. Richard Caspe, Director, Emergency
500034 and Remedial Response Division, U.S. EPA, Region
II, from Mr. Michael J. O'Toole, Jr., Director,
Division of Environmental Remediation, New York
State Department of Environmental Conservation
(NYSDEC), re: Review of the June 1998 Superfund
Post-Decision Proposed Plan for the GM Central
Foundry Site, Massena, dated, August 10, 1998.

APPENDIX 2

RESPONSIVENESS SUMMARY

GENERAL MOTORS - CENTRAL FOUNDRY DIVISION SUPERFUND SITE
MASSENA, NEW YORK

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ATTACHMENTS

- A. POST-DECISION PROPOSED PLAN
- B. PUBLIC NOTICES
- C. SIGN-IN SHEETS
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- E. RELEVANT HEALTH STUDIES

RESPONSIVENESS SUMMARY
GENERAL MOTORS - CENTRAL FOUNDRY DIVISION SUPERFUND SITE
POST-DECISION PROPOSED PLAN

1.0 INTRODUCTION

A responsiveness summary is required by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) at 40 CFR 300.430 (f) (3) (F). It provides a summary of significant comments and questions received during the public comment period, and the U.S. Environmental Protection Agency's (EPA's) responses to those comments and questions. The Responsiveness Summary is appended to and is part of the Record of Decision (ROD) Amendment, the document that describes the changes to the selected remedy for remediating the General Motors Corporation (GM) Superfund Site (the Site). Comments summarized in this Responsiveness Summary have been considered in EPA's decision for selecting a modification to the original remedial action for the Site.

This Responsiveness Summary is organized into the following sections:

2.0 Summary of Community Relations Activities

This section summarizes EPA's community involvement activities relative to a Post-Decision Proposed Plan (hereinafter the "Plan") issued in August 1998.

3.0 Summary of Comments Received During the Public Comment Period and EPA's Responses

This section summarizes both oral and written significant comments submitted to EPA by interested citizens at the public meeting and during the public comment period and provides EPA's responses to these comments.

4.0 Comprehensive Summary of Significant Legal and Technical Comments and EPA's Responses to These Comments

This section summarizes other written comments submitted to EPA during the public comment period and provides EPA's responses to these comments. It is comprised of specific legal and technical questions and, where necessary, elaborates with technical detail on answers covered in Section 3.0.

2.0 SUMMARY OF COMMUNITY RELATIONS ACTIVITIES

In August 1998, EPA released the Plan, which described proposed changes to the remedy selected by EPA in its December 17, 1990 Record of Decision for the first Operable Unit (OU1) at the Site, located in Massena, New York. The Plan was developed by EPA in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the St. Regis Mohawk Tribe (SRMT). The Plan is attached to this Responsiveness Summary as Appendix A.

The Plan, along with other technical supporting documents, was made available to the public at information repositories maintained at EPA Region II's office in New York City, at the Massena Public Library, and at the SRMT Health Services Building, located in Hogansburg, New York. The Plan also was mailed to approximately 400 citizens on EPA's mailing list for the Site.

EPA held a public comment period from August 21, 1998 through October 13, 1998. The public comment period, which was scheduled to end on October 5, 1998, was extended an additional eight days to October 13, 1998, at the request of the Environment Division of the SRMT. A public notice announcing the public comment period, public meeting, and availability of the Plan was published in the *Courier-Observer* daily newspaper on August 21, 1998, and in the *Indian Times* and *People's Voice* newspapers on August 28, 1998. A public notice announcing an extension of the public comment period was published in the *Courier-Observer* on October 6, 1998. Copies of the public notices are attached to this Responsiveness summary as Appendix B. EPA also issued a Public Service Announcement, which ran from September 10 through 17, 1998, on local radio stations to publicize the public meeting. In addition, on August 20, 1998, EPA issued a press release to regional media in the United States and Canada.

EPA held a public meeting on Thursday, September 17, 1998, at the Akwesasne Housing Authority Auditorium, Route 37, Hogansburg, New York. Approximately 33 people attended. The sign-in sheets from the meeting are attached to this Responsiveness Summary as Appendix C. During the meeting, representatives from EPA answered questions and received comments on the Plan. The proceedings of the meeting were recorded in a transcript, which has been placed in the information repositories designated for the Site.

Prior to the public meeting on September 17, 1998, representatives from EPA met with representatives from the SRMT Tribal Chiefs and the Environment Division to brief them on the Plan. EPA invited the representatives to the public meeting.

In addition to comments received at the public meeting, EPA received written comments during the public comment period. EPA's responses to these comments are included in this Responsiveness Summary. Copies of the written comments are attached as Appendix D.

3.0 SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC MEETING AND PUBLIC COMMENT PERIOD AND EPA'S RESPONSES

All comments and questions submitted during the public meeting and public comment period are summarized below according to the following topics:

- 3.1 Cleanup Levels
- 3.2 Raquette River
- 3.3 Off-Site Disposal
- 3.4 Industrial Landfill
- 3.5 Stockpiled Sediments
- 3.6 Health Issues
- 3.7 Superfund Process
- 3.8 Other Issues

3.1 Cleanup Levels

3.1.1 Comment: A resident from Akwesasne commented that no polychlorinated biphenyl (PCB) contamination should be tolerated, and all contaminated materials should be removed from the Site.

EPA Response: The 10 parts per million (ppm) PCB level selected for off-site disposal is protective of human health and the environment and is consistent with and in some cases, more stringent than existing Applicable or Relevant and Appropriate Requirements (ARARs). The cleanup level for soils on GM property is 10 ppm PCBs; soils on Tribal lands have a cleanup level of 1 ppm PCBs. The cleanup level for the St. Lawrence River and Raquette River is 1 ppm PCBs; Tribal sediments have a cleanup level of 0.1 ppm PCBs. This ROD Amendment does not change any of these cleanup levels. Additionally, the 10 ppm PCB off-site disposal level is consistent with the treatment levels selected in the OUI ROD.

Further, the on-site containment of PCBs at concentrations less than 10 ppm is consistent with EPA's "Guidance on Remedial Actions for Superfund Sites with PCB Contamination" (EPA 540/G-90/007) (hereinafter the "PCB Guidance"). Materials left on-site with PCB concentrations of less than 10 ppm will be covered with a multilayer impermeable cap and a groundwater recovery system will be installed. Results of all monitoring of the containment system

will be reviewed by the EPA, NYSDEC and SRMT.

3.1.2 Comment: A representative of the Akwesasne Task Force on the Environment stated that consistent standards should be applied to the Site for cleanup and treatment levels in the OU1 ROD. All materials containing PCB concentrations greater than 10 ppm PCBs should be removed from the Site, including the Miscellaneous Site Soils and the soils excavated in 1992.

EPA Response: This ROD Amendment is consistent with the OU1 ROD in that the disposal level and the treatment level are the same. This ROD Amendment does not change the cleanup levels selected in the OU1 ROD. The only change from the OU1 ROD is related to what happens to materials after they are dredged or excavated.

This ROD Amendment addresses only a portion of the Site (i.e., the Raquette River sediments and bank soils, the St. Lawrence River sediments and any soils excavated during the installation of groundwater controls) for several reasons. EPA wishes to advance the cleanup of the entire Site. By prioritizing the Raquette River, groundwater controls and removing stockpiled sediments, the potential health-related risks which relate predominantly to the consumption of contaminated fish, will be reduced. This is a goal which all parties involved wish to achieve. EPA is not prepared to modify the OU1 ROD to include the removal of miscellaneous site soils at this time. EPA continues to evaluate whether any further ROD Amendments are needed.

3.1.3 Comment: A representative of the Akwesasne Task Force on the Environment stated that the SRMT's position has always been against landfilling. The SRMT recommends adding to the Plan the off-site disposal of soils and sediments removed from the Raquette River that contain less than 10 ppm of PCBs. Since GM will save \$3.8 million in implementing the Plan, some of the saved funds should be used to achieve lower cleanup levels or to remediate additional areas at the Site. There is already a large amount of material in the East Disposal Area that will not be removed and treated.

EPA Response: There would be no significant benefit related to the off-site disposal of materials from the Raquette River with PCB concentrations less than 10 ppm, which is the OU1 cleanup level for soils on GM property. The greatest benefit is achieved from the removal of all sediments in the Raquette River with PCB concentrations greater than 1 ppm. The materials with concentrations between 1 and 10 ppm PCBs will be placed in the EDA. EPA believes that the cleanup levels selected in both the OU1 and OU2 RODs are protective of human health and the environment. It is

also important to note that although the costs represented in this ROD Amendment are lower than the costs in the OUI ROD, they are higher than the costs estimated in EPA's 1995 Proposed Plan. The 1995 Proposed Plan was in compliance with EPA's regulations and policies but was withdrawn by EPA based predominantly on the objections of the SRMT. When a comparison of costs is made, the costs of implementing the 1995 Proposed Plan should be noted.

3.1.4 Comment: Several residents stated that the amount of material to be shipped off-site is "excessive" and asked EPA to consider a higher on-site containment threshold.

Several residents expressed support for on-site containment, either in the East Disposal Area or Industrial Area, of materials with PCB concentrations between 1 and 500 ppm.

Several residents expressed support for on-site containment of material with PCB concentrations less than 50 ppm and off-site disposal of materials with higher PCB concentrations.

A representative from the Jefferson, Lewis, and St. Lawrence Counties Central Trade and Labor Council, AFL-CIO, recommended that EPA follow the 50 ppm spill cleanup level or EPA guidance of 500 ppm for industrial sites.

Several residents and a representative from the Jefferson, Lewis, and St. Lawrence Counties Central Trade and Labor Council, AFL-CIO, stated that a risk assessment would support more reasonable disposal levels.

EPA Response: While it is true that materials with PCB concentrations greater than 10 ppm could be contained at the Site in compliance with applicable regulations and the PCB Guidance, EPA believes that the 10 ppm PCB off-site disposal level is consistent with the OUI ROD treatment requirement and is essentially the same as the 1990 ROD requirement, since both remedies include the elimination of materials with concentrations of PCBs greater than 10 ppm from the Site. In addition, this ROD Amendment will result in the immediate cleanup of particularly environmentally sensitive areas of the Site. The discussions regarding the disposal and/or treatment levels for the rest of the Site will continue.

3.2 Raquette River

3.2.1 Comment: Representatives of the SRMT Environment Division and the Akwesasne Task Force on the Environment stated that further investigation is necessary downstream of GM's Outfall 002 to the mouth of the Raquette River since PCB contamination has

migrated into Mohawk tribal waters and a cleanup standard of 0.1 ppm of PCBs should be applied in tribal waters.

EPA Response: Further investigation in the Raquette River will be conducted prior to remedial activities. A sampling plan for the Raquette River is currently under development as part of the design phase of the remedy. All design and sampling documents will be reviewed by SRMT. Tribal ARARs will apply to contaminated sediments on Tribal lands.

3.2.2 Comment: A representative from the State University of New York at Albany and Cornell University commented that the right to fish in the Raquette River is important to the well-being of the Mohawk people.

EPA Response: EPA agrees with this comment. This comment highlights the importance of proceeding with the cleanup of the Raquette River.

3.3 Off-Site Disposal

3.3.1 Comment: A representative of the New York State (NYS) Citizen's Environmental Coalition asked whether an off-site disposal facility had been chosen.

EPA Response: GM plans to ship the waste to two Safety Kleen Facilities in Utah. The Grassy Mountain Facility (formerly known as USPCI) in Tooele County is a Resource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TSCA)-chemical waste landfill and will accept the materials with PCB concentrations greater than 50 ppm. The ECDC Facility is located in East Carbon, Utah and will accept wastes with PCB concentrations less than 50 ppm.

3.3.2 Comment: A resident of Akwesasne and a representative of the NYS Citizen's Environmental Coalition commented that disposing of contaminated materials off-site will most likely cause similar problems for other communities, and there is concern since those communities will most likely also be minority communities. For these reasons, off-site treatment, rather than off-site landfilling of contaminated materials is the preferred option.

EPA Response: All dredged or excavated material with PCB concentrations above 10 ppm will be transported to either of the two facilities listed previously. The Grassy Mountain Facility is located within a 100 mile hazardous waste activity zone designated by Tooele County for the specific purpose of isolating hazardous

waste from the community. The nearest residence is approximately 40 miles west of the facility. The facility is permitted by EPA under RCRA and TSCA. At the facility, hazardous wastes are managed in a secure and monitored location. The facility has a liner, engineering controls, and monitoring wells to assure the long-term effectiveness of the facility as a containment system. Prior to remediation, EPA will confirm the facility's current compliance with all applicable regulatory requirements. The ECDC Facility will accept the lesser contaminated wastes and is a permitted RCRA Subtitle D facility. All necessary approvals will be obtained prior to disposal to ensure that the materials meet the facility's permit restrictions.

3.3.3 Comment: Several residents expressed support for off-site disposal of contaminated materials rather than on-site containment or treatment.

EPA Response: No response is necessary.

3.4 Industrial Landfill

3.4.1 Comment: The Director of the Haudenosaunee Environmental Task Force and a concerned resident questioned the long-term integrity of the cap and the impermeability of the soils and bedrock underlying the Industrial Landfill. Solvents and degreasers were disposed of in the landfill and may have damaged any impervious layers underneath the landfill. The residents would prefer the removal of all hazardous materials that have been disposed of on-site so that the source of PCB contamination will be "turned off at the tap." He also commented that contamination from the landfill is causing disease in the Mohawk community and must be removed.

EPA Response: EPA is continuing to work with SRMT and NYSDEC to resolve the issues related to the Operable Unit 2 (OU2) remedy for the Industrial Landfill selected in 1992. This ROD Amendment does not propose any changes to the remedy for the Industrial Landfill. EPA has, however, requested GM to develop a sampling plan for further characterization of the landfill. Sampling is expected to begin in 1999.

3.4.2 Comment: A Legislator from the SRMT inquired whether the Industrial Landfill is lined.

EPA Response: The Industrial Landfill is not lined with a synthetic liner but is underlain by a layer of natural material which has low permeability.

3.4.3 Comment: A Legislator from the SRMT stated that due to the seismic conditions in the area the Site is not an appropriate place for a landfill; therefore the Industrial Landfill should be removed.

EPA Response: According to the Uniform Building Codes, the area around the St. Lawrence Seaway is classified as being in a Level III earthquake zone. Earthquakes in Level III zones are described as causing potential major structural damage. As a result, any structure, including the landfill cap and slurry walls, will be designed to handle earthquake loadings.

In the event of an earthquake or other such catastrophe, EPA will evaluate the structures at the Site to determine whether damage has occurred. If a structure associated with the Site cleanup activities has been affected, EPA will direct GM to repair it. Surface structures, such as caps, can be visually monitored following an earthquake and can be quickly repaired.

EPA is working with the SRMT as well as NYSDEC to develop a sampling plan which will collect the necessary data to address the Tribe's concerns regarding the seismic risk posed by the Site.

3.4.4 Comment: A representative from the Mohawk Council of Akwesasne commented that the Industrial Landfill should have the highest priority and asked why EPA is concentrating their efforts on the remediation of the rivers instead of focusing on the Industrial Landfill.

EPA Response: The hazard posed by any contaminated site is based on the type of chemicals present as well as the routes of exposure. The risk posed by the Industrial Landfill was greatly reduced by capping which minimized the potential for exposure to contaminants by reducing airborne PCBs and reducing the waste's contact with precipitation and thus reducing the amount of leachate produced. This ROD Amendment will facilitate the installation of the groundwater control system and the removal and off-site disposal of contaminated sediments at the foot of the Industrial Landfill. These controls will contain any leachate or release to the groundwater of contaminants from the Landfill.

EPA has prioritized the contaminated sediments in the St. Lawrence River, Turtle Creek and Raquette River since those sediments have caused contamination to the water column as well as the fish. Consumption of contaminated fish from the St. Lawrence River and Turtle Creek is of greatest concern and is restricted under the direction of the New York State Department of Health (NYSDOH) due to the presence of PCBs in fish tissue. The greatest environmental

hazard at the site is the consumption of fish from the St. Lawrence River and Turtle Creek.

3.4.5 Comment: A representative from the Mohawk Council of Akwesasne commented that EPA should not have allowed the dredging of PCB-contaminated materials from the river before the Industrial Landfill was remediated, since leachate from the landfill will only re-contaminate the river. He also stated that a containment wall would not be adequate to prevent leachate from reaching the river.

EPA Response: The health threat posed by the Industrial Landfill is significantly less than the health risk posed by contaminated sediments and eating contaminated fish. Any potential release from the landfill will be mitigated by the groundwater control system. This ROD Amendment will facilitate the construction of the groundwater control system.

3.4.6 Comment: Several residents expressed support for the Plan. However, they reminded EPA of the need for permanent remediation of other areas of the Site, namely the East Disposal Area (EDA) and Industrial Landfill, which are not part of this Plan.

EPA Response: As stated, the EPA will continue to work towards a solution which is acceptable to all parties, if possible, regarding the EDA and Industrial landfill. Further characterization of the Industrial Landfill and sampling will help determine the most appropriate methods for advancing the cleanup of the EDA and Industrial Landfill.

3.4.7 Comment: A resident expressed concern about disturbing the capped Industrial Landfill and the high costs for disposing of low quantity, low concentration material off-site. This assumes, however, that a technically adequate groundwater containment and treatment system is put in place at the site.

EPA Response: There is no current plan to "disturb" the capped Industrial Landfill other than an upcoming sampling event and the removal of contaminated material at the foot of the landfill near Turtle Creek. A groundwater control system will be put in place to capture any leachate from the Industrial Landfill.

3.5 Stockpiled Sediments

3.5.1 Comment: A representative of the NYS Citizen's Environmental Coalition asked whether the stockpiled sediments were being stored in a manner which prevents additional releases of

PCBs, what maintenance is performed on the covers which were placed over and under the stockpile, and whether testing is being performed to determine if PCBs are leaking from the stockpile.

EPA Response: The stockpiled sediments have been covered and stored in an engineered storage cell which contains three separate areas and is underlain by high density polyethylene liner. The covers are regularly inspected and repaired, if necessary. A drainage system collects any liquid which may have come in contact with the materials and conveys that liquid to the wastewater treatment system to remove any PCBs it may have encountered.

3.6 Health Issues

3.6.1 Comment: A resident of Akwesasne commented that the residents in the area have been mentally and physically affected by PCB contamination from the Site, as evidenced by increases in cancer and thyroid problems. The resident asked how the increased costs for health care will be covered.

EPA Response: Under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), EPA is not able to provide funding for health care costs. This could be addressed by other Federal Agencies including the Department of Health and Human Services (HHS) and Indian Health Services.

3.6.2 Comment: A Legislator from the SRMT indicated that in the past, many people obtained used barrels from the GM facility and re-used those barrels to collect rainwater for domestic use. These people now have thyroid problems.

EPA Response: It is not possible, at this time, to determine whether there was any exposure to PCBs from the use of barrels that were removed from the GM facility. In addition, this issue is beyond the scope of this ROD Amendment.

3.6.3 Comment: A resident of Akwesasne inquired whether EPA can assist in raising the level of appropriation for the Indian Health Service funds.

EPA Response: As stated previously, under CERCLA, EPA is not able to provide funding for health care costs. This could be addressed by other federal agencies including the HHS and Indian Health Services.

3.6.4 Comment: A Legislator from the SRMT inquired why a study has not been performed to determine the health affects of PCB

exposure on the residents of Raquette Point.

EPA Response: The NYSDOH in conjunction with the Agency for Toxic Substances and Disease Registry (ATSDR), has funded numerous studies of PCB exposure on residents at Akwesasne. Additional studies have been performed by the National Institute for Environmental Health Studies under funding provided by EPA. Attachment E provides a list of those studies. In addition, EPA will forward copies of these studies to the information repositories. The community can request that NYSDOH perform additional studies.

3.6.5 Comment: A resident of Akwesasne asked what level of PCBs in human blood is considered a safe level and what level would be a cause for concern.

EPA Response: There are many variables which would determine the potential health effects resulting from differing PCB levels in the blood for an individual. Therefore, there is no one number that can be considered safe or unsafe for everyone. Although blood PCB tests can indicate whether an individual has been exposed to PCBs to a greater extent than the general population, they do not predict whether an individual will develop health effects.

Residents at Akwesasne can greatly reduce the potential for exposure to PCBs by strictly observing the NYSDOH advisories related to the limited consumption of fish from the St. Lawrence River and the prohibition on consumption of any fish from Turtle Cove.

3.6.6 Comment: Residents of Akwesasne stated that when the Industrial Landfill was being capped, the workers wore personal protective equipment, but residents in the area were not protected. Since the community was located downwind of the capping work, people were exposed to airborne PCB contamination because of EPA's neglect.

EPA Response: During capping of the landfill, perimeter air monitoring was performed to ensure that airborne contamination did not migrate off-site. A monitoring station was placed at the location of the closest receptor (Ida Ransom's residence), and at other locations surrounding the Site. The plan for air monitoring was reviewed by Tribal Health Services (now known as the SRMT Environment Division) and was performed with their cooperation and oversight. Based on the results of the air monitoring, it was determined that personal protective equipment or relocation was not required for the residents of Akwesasne.

In addition, it is important to note that risk from exposure is highest at the point of direct contact. Site remediation workers have repeated, daily and direct contact with the PCB-contaminated materials and therefore require a high level of protection.

3.6.7 Comment: A resident from Akwesasne commented that many residents in the area cannot have children and many women have suffered miscarriages due to the contamination caused by the Site.
EPA Response: This concern may best be addressed through consultation with ATSDR and the NYSDOH. In addition, there have been a number of studies which have been performed to determine the effects of environmental contaminants on residents of Akwesasne. See Attachment E to this Responsiveness Summary for a list of the health studies performed.

3.7 Superfund Process

3.7.1 Comment: A resident from Akwesasne stated that in its decision-making, EPA should take into account the fact that the Mohawk people are connected with the land and therefore wish to protect the land rather than abandon it. A representative from the Environment Division of Akwesasne commented that EPA should consider the health and the community as a primary factor in EPA's decision-making. He asked if EPA considered other important factors such as the number of lives that will be saved over other factors, such as costs.

EPA Response: "Protection of human health and the environment" is the most important criterion EPA uses to evaluate a remedy. EPA is mandated to ensure that the exposure of the people to contaminants does not pose an unacceptable risk.

This remedy will result in the removal of materials with PCB concentrations greater than 10 ppm and containment of PCB-contaminated materials with concentrations less than 10 ppm at the Site. This material will be covered with an engineered multilayer cap and all underlying groundwater will be collected and treated, eliminating any risk or exposure to those contaminants.

In addition, EPA will ensure that Tribal lands, when they are addressed, are subjected to Tribal cleanup standards.

3.7.2 Comment: A resident from Akwesasne commented that EPA has not taken the costs to the community into account. Specifically, it has been eight years since the Record of Decision for OUI was signed and the Akwesasne people have been exposed to contamination from the Site during that time period. GM and EPA should take responsibility for exposing the residents of Akwesasne

to PCB contamination for that length of time and the additional time that further studies and testing will take.

EPA Response: The amended OU1 ROD, as well as the OU2 ROD, is protective of human health and the environment. However, the greatest risk posed by the Site is from the consumption of contaminated fish. The stockpiled contaminated sediments addressed in this ROD Amendment were removed from the St. Lawrence River in 1995 to reduce that threat. Although the recovery of the River will take time and the fish consumption rates remain restricted, much has been done to reduce the potential health threat. In addition, the capping of the Industrial Landfill in 1988 resulted in the reduction of risk from airborne or volatile PCBs.

3.7.3 Comment: A representative from the Mohawk Council of Akwesasne asked whether factors such as the history of the Site are taken into account during EPA's decision-making process. He also inquired about the people who will make the final decisions.

EPA Response: The history of the Site is an important part of determining which investigations have been or will be performed to delineate the nature and extent contamination on the Site.

After consideration of all public comments received during the public comment period, EPA's Regional Administrator, in consultation with NYSDEC and the SRMT, makes the final decision regarding remedial alternatives to be implemented at the Site. EPA's decision is reflected in the ROD Amendment for the Site.

3.8 Other Issues

3.8.1 Comment: A representative from the State University of New York (SUNY) at Albany and Cornell University commented that EPA's Site map presented a very technical view of the Site, and did not indicate the locations of residences and schools. The omission of these buildings on the Site map indicates that EPA views the Site from a purely technical stance and has been treating the Site like a typical industrial site. However, the Site is not a typical industrial site and EPA should put more efforts into community outreach.

EPA Response: The Site map contained in the 1998 Proposed Plan is intended to represent the areas of contamination and the areas to be remediated under this ROD Amendment. EPA believes that it has provided a high level of community involvement and has not treated this as a typical industrial site. EPA met periodically with the Tribal Council to discuss all aspects of the Proposed Plan which formed the basis of this document. In addition, EPA provided the

SRMT Environment Division a copy of the Proposed Plan and incorporated the Tribe's comments prior to the Plan's public release. Additionally, EPA briefed the Akwesasne Task Force on the Environment prior to the release of the Proposed Plan and held the public meeting at Akwesasne. EPA will continue to enhance its community outreach activities and will be responsive to the Tribe's input on how best to improve these efforts.

3.8.2 Comment: A resident of Akwesasne inquired whether EPA was evaluating dioxin levels at the Site and whether dioxins are an issue.

EPA Response: During the remedial investigation, dioxin was tested for in both soils and sediments and was not detected in any samples. Dioxin, therefore, is not considered a contaminant of concern at the Site.

3.8.3 Comment: A resident of Akwesasne inquired whether EPA has considered indoor air quality and whether there are indoor air quality standards for PCBs.

EPA Response: The St. Regis Mohawk tribal government has set indoor air quality standard for PCBs at Akwesasne. Indoor air quality will be considered in the development of the air monitoring plan.

3.8.4 Comment: A resident of Akwesasne asked for an explanation of GM's legal position with regard to the Site.

EPA Response: One of the purposes of the public comment period for a ROD is to allow EPA to provide information to the community and obtain and respond to comments and feedback from the public on the specific technical aspects of the plan. Since this question requires subjective input from GM, it cannot be answered by EPA in the scope of this document.

GM's comments regarding the Proposed Plan are included in Attachment D to this Responsiveness Summary and are addressed in 4.1 of the Responsiveness Summary.

3.8.5 Comment: An Akwesasne resident explained that EPA has lost the trust of the SRMT because EPA has been performing studies, producing reports, and holding meetings for many years and issues such as exposure to PCBs and remediation of the contaminated materials at the Site have not been resolved. Since so little progress has been made at the Site, the people no longer trust EPA's word.

EPA Response: EPA appreciates the commenter's frustration with the pace of the cleanup at the Site. However, the process of investigating a Superfund site, developing cleanup levels, designing a remedy and then implementing that design are technically and logistically complex. Such complexities are especially challenging at large sites such as the GM Site, which consists of ten separate and distinct areas of contamination in various media and containing over one hundred thousand cubic yards of contaminated material requiring remediation. In addition, technical reports prepared by GM and its consultants must be reviewed by Federal, state and Tribal governments. Resolving the technical issues raised by the governments can often be a time consuming, yet is a very necessary part of the process.

EPA's interaction with the Mohawk Nation is a major concern of the Agency. EPA has endeavored to foster a productive working relationship with the Tribe throughout the remedial process for the Site. EPA consulted with the Tribe on major aspects of the OU1 and OU2 RODs, and on the development of the Plan, and regularly seeks the input of the Tribal Government on Site-related issues. In fact, EPA withdrew its 1995 Proposed Plan for the Site largely as a result of community, including Tribal, opposition to that Plan. EPA will continue to consult with the Tribe, and encourage its involvement in Site-related remedial issues.

3.8.6 Comment: A resident of Akwesasne commented that GM should clean up the Site and the river at any cost in order to correct the wrong that they have done.

EPA Response: Under the NCP, EPA must consider nine criteria when selecting a remedy for a Superfund site. Although cost is one of the criteria that must be considered by EPA, CERCLA and the NCP require that all remedies selected by the Agency must be protective of human health and the environment. Although EPA considered the cost reduction in its decision to amend the OU1 ROD and allow the off-site disposal rather than treatment of material contaminated with PCBs in excess of 10 ppm, the OU1 remedy, as amended, is protective of human health and the environment.

3.8.7 Comment: A resident expressed concern that the SRMT does not have accurate information about the risks posed by the Site. The resident said EPA should reduce these risks by cleaning up the cove and reservation areas and containing this material securely on the Site.

EPA Response: All documents reviewed by EPA and NYSDEC are also reviewed by the SRMT. Both of EPA's Unilateral Administrative

Orders direct GM to provide three copies of all documents including those containing information regarding the risk posed by the Site, as well as monthly progress reports to the SRMT Environment Division.

While EPA is eager to proceed with the cleanup of contaminated soils on Tribal Lands as well as Turtle Cove, EPA is not prepared to proceed with the cleanup of Tribal property without the consent of the Tribal property owners for access to these areas.

3.8.8 Comment: A resident asked EPA to move forward with the cleanup of other areas on the Site, especially areas off of the GM plant site (Turtle Cove and Reservation lands). The groundwater containment activities should also proceed at a rapid pace in order to eliminate the potential for any migration off the GM property onto neighboring lands or rivers. The high concentration of PCB-contaminated materials in the North Disposal Area warrants off-site treatment or landfilling. The low concentration of PCB-contaminated material in the EDA does not warrant off-site disposal or on-site treatment.

EPA Response: Regarding contamination on Tribal Lands, EPA wishes to proceed with the cleanup of Tribal property, as discussed above. For this reason, EPA has included those areas in this ROD Amendment as a contingency remedy, which is based upon gaining access to those contaminated areas not on GM property. With regard to expediting the control of groundwater, EPA agrees; one of the main goals of this ROD Amendment is to expedite the control of groundwater at the Site. Regarding the EDA and the North Disposal Area, it should be noted that the selected OU1 and OU2 RODs call for on-site treatment of these materials, however, these remedies are in dispute and have met with significant opposition. EPA is working with all parties to resolve these issues.

4.0 COMPREHENSIVE SUMMARY OF MAJOR LEGAL AND TECHNICAL COMMENTS AND EPA'S RESPONSES TO THESE COMMENTS

4.1 General Motors Corporation (GM)

The comments summarized in this section were received from GM.

4.1.1 Comment: There is no basis under CERCLA, the NCP, or EPA guidance for requiring that excavated and dredged materials with PCB concentrations less than 50 ppm be sent off-site instead of being placed within the on-site area for which capping is planned. The presence of higher concentration materials (i.e., materials with PCB concentrations greater than 50 ppm) at the facility should not alter how the lower concentration materials are addressed,

since the materials can generally be segregated by concentration.

In addition, the cleanup level for "low occupancy areas" specified in 40 CFR 761.3 is 50 ppm if the Site is secured by a fence. GM maintains that the area to be capped is a low occupancy area based on projected post-remediation occupancy of 180 hours per year, and it is spatially isolated from the remainder of the facility and is fenced. Therefore, GM maintains that remediation wastes with concentrations less than 50 ppm, not 10 ppm, should be allowed to be placed in the capped area on-site.

EPA Response: The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300.430(e)(9) established the nine criteria pursuant to which EPA selects remedial actions at Superfund sites. Among the evaluation criteria is community acceptance. Based on the comments received during the public comment period for the 1995 Proposed Plan, this ROD Amendment was developed to address the most pressing environmental concerns and gain community acceptance.

4.1.2 Comment: EPA recently decided to allow River sediments with PCB concentrations up to 50 ppm to be disposed of on-site at the Reynolds Metals Company (RMC) Site. The geology and other characteristics of the GM facility are at least as conducive to safe on-site disposal of low concentrations of PCBs in soils as the RMC facility.

EPA Response: Although the RMC Site and the GM Site are in close proximity and have similar characteristics, EPA considers the nine criteria for each site on an individual basis. The recent change in the RMC ROD was initiated to provide for consistency with the decisions made by NYSDEC regarding the land-based portion of the cleanup. EPA's rationale for the modifications included in this ROD Amendment represent consistency with the OUL remedy for the Site. Furthermore, this ROD Amendment was developed in response to significant opposition from the St. Regis Mohawk Tribe; there was no such opposition to the RMC ROD Amendment.

4.1.3 Comment: The documents in the administrative record for the Site and conclusions supporting the revision of the PCB disposal regulations demonstrate that there would be no risk to human health or the environment from containing soils and sediments with PCB concentrations less than 50 ppm on-site under a cap in the vicinity of the East Disposal Area. Sending such materials to an off-site facility would present a higher risk of transportation-related accidents and injuries. Although the Proposed Plan suggests that transportation risks are estimated to be small due to the short duration of the off-site disposal activities,

transportation risks are based on the total number of vehicle miles traveled in the course of the project, not the duration of the project.

EPA Response: EPA has modified the ROD Amendment to reflect GM's point regarding the characterization of risk related to the duration of the cleanup. Again, EPA's selection of the 10 ppm PCB containment level reflects the overall concerns related to advancing the cleanup of the most environmentally sensitive areas of the Site while balancing the concerns of the community.

4.1.4 Comment: EPA's comparison of the costs for disposing off-site all specified soils and sediments with PCB concentrations greater than 10 ppm with the costs of treating these materials on-site is inappropriate for two reasons. First, in its 1995 Post-Decision Proposed Plan, EPA agreed that treating materials with PCB concentrations less than 500 ppm was inconsistent with EPA policy and not the best alternative for the Site. Second, EPA omits any comparison of the costs of its proposed alternative with the costs of an alternative that includes on-site disposal of soils and sediments with PCB concentrations less than 50 ppm.

EPA Response: When evaluating the remedial alternatives for a site, cost is only one of the nine criteria that EPA considers. In addition, several factors have come to light since the release of the recently withdrawn 1995 Proposed Plan, the most important of which is the concerns of the Mohawk community. Again, EPA's selection of the 10 ppm PCB containment level reflects the overall concerns related to advancing the cleanup of the most environmentally sensitive areas of the Site while balancing the concerns of the community.

4.1.5 Comment: There is no basis under CERCLA, the NCP, or EPA guidance for requiring that excavated and dredged materials with PCB concentrations less than 500 ppm be sent to a RCRA- and TSCA-permitted facility. Materials with PCB concentrations less than 50 ppm do not present any health threat as long as they are placed beneath a simple asphalt or soil cap. There is no reason to require the features of TSCA and RCRA landfills, which typically charge higher disposal fees than solid waste landfills.

EPA Response: See response to comment 4.1.3, above. In addition, EPA did not intend to require that materials from the GM Site with concentrations of PCBs less than 50 ppm be shipped to a secure RCRA/TSCA facility. It was the restrictions in GM's own national contract with its hazardous waste disposal company that required this level of containment.

4.1.6 Comment: If EPA is considering extending the proposed remedy to the remainder of the OUI soils and sediments, GM would oppose this for all of the reasons stated in their earlier comments. There are more than 25,000 cubic yards of OUI soils and sediments with PCB concentrations between 10 and 50 ppm. Sending this volume of material off-site would present significant additional transportation and handling risks and cost about \$5.5 million more than disposing of such low-threat material on-site, without providing any additional health or environmental benefits.

EPA Response: EPA is in the process of re-evaluating the remedy for the other OUI areas.

4.1.7 Comment: Material from on-site lagoons should be included in this phase of the work.

EPA Response: The rationale for limiting this ROD Amendment to specific areas of the Site is described above in EPA's response to comment 3.1.2.

4.2 St. Regis Mohawk Tribe (SRMT)

The comments summarized below were received from the SRMT.

4.2.1 Comment: As a trustee of the natural resources in and adjacent to Akwesasne, the SRMT is opposed to the landfilling of PCBs as a permanent remedy. This position is supported by scientific research which has identified PCBs as hormone disruptors which cause adverse reproductive effects, learning disabilities and immunodeficiency. This research should also support a tightening of EPA standards for implementing permanent cleanup plans, and a move away from relaxed standards.

EPA Response: EPA acknowledges the potential toxicological health effects of PCBs. However, risk involves not only the toxicity of a chemical but also the routes of exposure. If an individual is not exposed to a toxic chemical there is no risk. The OUI ROD, OU2 ROD and this ROD Amendment are designed to prevent exposure to PCBs at levels which may pose an unacceptable risk.

In identifying the use of a secure landfill with appropriate precautions to prevent releases of PCBs into the environment, EPA selected an effective method to preventing exposure to human populations from the PCB-contaminated waste.

While EPA fully understands SRMT's objection to the landfilling of PCB-contaminated materials, EPA must select remedies that are in compliance with the NCP and CERCLA. Both long-term containment and

treatment are in compliance with EPA's regulations, laws and policies.

4.2.2 Comment: EPA is required by common law principles as well as various Presidential directives to select a remedy that is responsive to the unique needs of the residents of Akwesasne. Case law has recognized the interests of sovereign governments in protecting the air, land, and water resources from polluting sources - even when those sources are located beyond the sovereign's territory. Tribes, like states, possess such quasi-sovereign governmental powers and as such may control on or off-reservation activities that may affect natural resources they own, land held in trust by the federal government, as well as activities on or off resources protected by treaty rights. EPA has a responsibility to assure that inherent Tribal rights of sovereignty are fully protected and thus must extend the Tribal ARARs for PCBs onto the GM property to the extent reasonably necessary to protect tribal sovereignty. [condensed comment]

EPA Response: EPA does not believe that Tribal ARARs apply to portions of the Site that are not on Tribal lands. However, EPA has taken into account the interests and the comments of the SRMT in fashioning an appropriate and protective remedy for the Site and has attempted to be responsive to the needs of the residents of Akwesasne when developing the remedy. EPA has divided the remedy of the Site into two operable units, each of which consists of several components. Many of these components have been modified directly, or in part, due to comments submitted by the Tribe. With regard to specific remedial components, EPA's PCB policy indicates that, in general, up to 500 ppm of PCBs can be contained on-site at industrial facilities. After careful consideration of the comments received regarding on-site containment of such materials and the relative cost of off-site disposal, EPA has determined that all contaminated materials excavated/dredged from the St. Lawrence River and the Raquette River, along with materials excavated during the installation of the site-wide groundwater controls with PCB concentrations greater than 10 ppm will be shipped off-site for disposal at a secure facility.

In response to concerns expressed by the Tribal Council on the design for the Industrial Landfill, the slope of the landfill will be modified and an area of contamination at the toe of the slope will be excavated rather than contained, as originally planned. Additionally, EPA has directed GM to perform further sampling with regard to seismic stability to alleviate the concerns the SRMT Environment Division has expressed over this issue.

It should also be noted that in performing risk assessments at the

Site, EPA assumed a consumption rate of 130 g/day (1/4 lb/day) in order to account for the Mohawk culture's reliance on fish as a food source. This compares to a national fish consumption average of 6.5 g/day and is twice the high end of distribution value (95th percentile) of 65 g/day. The risk was also calculated over a 70 year period as opposed to the 30 year span typically used in risk assessments.

As discussed in this ROD Amendment, in June 1995, EPA issued a Post-Decision Proposed Plan that called in part for raising the treatment level for PCBs and containing certain contaminated materials on site. After lengthy discussions with the Tribe and other interested parties regarding the proposed remedial approach, the 1995 Plan was withdrawn.

In addition, EPA has been sensitive to the Tribe's financial needs as well as the need for technical assistance with regard to establishing environmental standards for Tribal land. EPA has provided the St. Regis Mohawk Tribe \$ 510,806 in funding to enable the Tribe to review GM Site-specific documents and provide oversight of GM activities. As further discussed below, EPA also worked with the Tribe to help promulgate Tribal ARARs.

CERCLA requires that each site remedy comply with applicable or relevant and appropriate requirements (ARARs) or justify a waiver for these requirements. The ARARs applicable to the alternatives considered for the GM Site in the Proposed Plan included, but were not limited to, compliance with TSCA (which regulates PCBs), RCRA (which regulates the management of hazardous waste), and the State Pollutant Discharge Elimination System (which governs the discharge of water into the St. Lawrence River). (See Proposed Plan, pp. 8-9; See also, Table 13 in Appendix 2 of the 1990 ROD for ARARs which are applicable to the entire Site).

As described in the OUI ROD, Tribal ARARs apply to remedial work performed on Tribal lands including Turtle Creek and Tribal soils. If, however, additional sampling indicates that the Raquette River is contaminated on Tribal property, then Tribal ARARs would apply to those portions of the Raquette River on Tribal land.

4.2.3 Comment: EPA must take into account that the St. Regis Mohawk Reservation Area is a designated Environmental Justice Site and so must refer to the dictates of Executive Order No. 12898 for guidance in this matter. In the context of the Site, EPA has yet to acknowledge its important obligations to protect Tribal sovereignty and to implement the Environmental Justice Directives.

EPA Response: EPA's 1984 Indian Policy, reaffirmed by EPA

Administrator Carol Browner in March 1994, commits the Agency to work directly with Tribal governments on a "Government-to-Government" basis. Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and EPA Policy for the Administration of Environmental Programs on Indian Reservations," dated February 11, 1994 ("Order 12898"), as amended, directs Federal agencies to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. In "EPA Strategy in Response to Executive Order 12898", dated April, 1995 (the "1995 Response"), EPA committed to, among other things, "work with communities through communication, partnership, research, and the public participation processes" and to "administer appropriate grant programs for and promote technical assistance to...Tribal governments." As emphasized in the 1995 Response, "Environmental protection for American Indians...is a critical part of the Agency's mission."

As discussed in EPA's Response to Comment 4.2.2. above, EPA has worked closely with the SRMT over the years to enhance its participation in the remedy selection process at the Site, and has made significant efforts to be as responsive as possible to the Tribe's Site-related concerns. For example, Tribal comments and concerns played a significant role in the development of the amendments to the OU1 ROD. EPA also has provided both financial and technical assistance to the SRMT in connection with the Site, and worked with the SRMT to develop ARARs that apply to response actions conducted on Tribal land. In the context of the Site, EPA strongly believes that it has fulfilled, and continues to fulfill, the mandates of the Indian Policy, Executive Order 12898, and the 1995 Response. EPA will continue to work with the Tribe on a Government-to-Government basis to enhance and improve our partnership and protect Tribal health and environmental resources.

4.2.4 Comment: The SRMT generally concurs in that aspect of the 1998 Proposed Plan which proposed to ship off-site the sediments and other materials with PCB concentrations greater than 10 ppm that were dredged or excavated from the St. Lawrence River.

EPA Response: No response is necessary.

4.2.5 Comment: Further remedial investigation is needed from downstream of GM Outfall 002 to the mouth of the Raquette River. This is necessary in order to protect the traditional hunting and fishing grounds within and adjacent to the Mohawk Territory of Akwesasne. Data collected in this area shows PCB levels in

sediments exceed .1 ppm (Tribal ARAR for PCBs) in the Raquette River. Tribal ARARs must be adhered to in undertaking this further characterization and cleanup.

EPA Response: Additional characterization of the contamination in the Raquette River will be performed as part of the remedial design phase of the cleanup. EPA will not relieve GM of its obligation to comply with the cleanup requirements of CERCLA or Tribal ARARs on Tribal lands.

4.2.6 Comment: While the Tribe generally agrees with containing materials with PCB contamination below 10 ppm in the East Disposal Area ("EDA"), before the Tribe can concur with this portion of the remedy, EPA must order GM to remove the materials placed in the EDA during the 1992 excavation (for the expansion of the Plant), as well as the miscellaneous site soils collected in 1995 (the storage of which was supposed to be temporary in nature), as these materials contain PCBs at levels greater than 10 ppm. EPA should require the excavation & off-site disposal of these materials or explain why the current plan does nothing to reduce the overall load of PCB contaminated materials at the Site. As the volume of PCB laden materials to remain on-site increases, so does the potential for a release into the environment. [condensed comment]

EPA Response: Under this plan, no soils with PCB concentrations greater than 10 ppm will be placed in the EDA. EPA is not prepared, at this time, to order the removal of the Miscellaneous Site Soils from the EDA. This ROD Amendment will actually result in less PCBs on the Site than the OUI ROD, on which the Tribe concurred, since the original remedy called for the containment of materials with PCB concentrations less than 10 ppm as well as all treatment residuals. Under this ROD Amendment no treatment residuals will be placed in the EDA.

4.2.7 Comment: EPA must provide more information about how material with PCB concentrations below 10 ppm will be stored, including what ARARs are being waived, and what long-term controls will be in place to prevent movement or exposure of these materials. The SRMT requests detailed design specifications for the proposed vegetative soil cap.

EPA Response: There are no ARARs which prohibit the containment of materials with PCB concentrations less than 10 ppm at the Site or that would otherwise apply to the placement of those materials in the EDA. Therefore, no ARARs are being waived regarding the placement of materials with concentrations of PCBs between 1-10 ppm in the EDA. Additionally, there are no monitoring requirements for sites with PCB concentrations less than 10 ppm. However, the

entire Site will be monitored as long as contaminants are present. The monitoring will not be specifically for the materials with PCB concentrations less than 10 ppm, but it will be for the balance of the Site. The long-term control of these materials includes containment under a multi-layer cap and installation of a groundwater collection and treatment system which will prevent movement or off-site migration of groundwater. The specifications of the cap will be developed during the design phase. The SRMT will have opportunity to comment on the design details of the cap.

4.2.8 Comment: The SRMT expressed concern that EPA may seek to raise the treatment levels for the North Disposal Area, the lagoons, and Mohawk soils and sediments to 50 ppm. With the cost of off-site disposal dramatically reduced, EPA must explore the possibility of excavating the North Disposal Area and the inactive lagoons and shipping off-site those materials with PCB concentrations greater than 10 ppm. The SRMT requests EPA to consider off-site disposal for the OU2 Record of Decision.

EPA Response: EPA is in the process of re-evaluating the remedy for the other OU1 areas.

4.2.9 Comment: Referencing Sections XIII and XXVI of the Administrative Order requiring GM to implement the OU1 ROD, the policy of respect for Tribal Sovereignty, and the obligation to protect Tribal Sovereign rights, the SRMT states that EPA has retained the discretion to re-visit the remedial decisions that have been made and can order GM to implement a stricter remedy, specifically to order the remedy requested by the Tribe.

EPA Response: EPA believes that the remedies selected in the OU1 and OU2 RODs are protective of human health and the environment and does not expect to void those decisions in favor of the remedy preferred by the Tribe. However, in the Administrative Orders requiring GM to implement the RODs, EPA retained, among other things, the right to require the company to perform additional response actions at the Site in the event that EPA determines that such actions are necessary to protect human health and the environment.

4.2.10 Comment: GM should use the \$3.8 million it will save under the Proposed Plan to perform a more permanent cleanup for the remaining areas that are not addressed in the Proposed Plan.

EPA Response: Again, EPA believes that the cleanup levels selected in the OU1 and OU2 RODs are protective of human health and the environment. It is also important to note the although the costs represented in this ROD Amendment are lower than the costs in the

4.4.1 Comment: ATFE just performed a study that showed some chronic disease patterns increasing among the Mohawks of Akwesasne such as asthma, diabetes, hypothyroidism, and osteoarthritis. Current literature indicates EPA should be enforcing stricter standards for implementing permanent cleanup plans.

EPA Response: ATFE has not provided these studies to EPA. EPA requests that these studies be provided to the Agency for review.

EPA believes that the existing standards are protective for the following reasons. EPA sets clean-up standards at sites based on the evaluation of available toxicity information and exposure information. This information is then used to determine concentrations that will be protective of the potentially exposed population based on their activities.

In the toxicity testing, the data is primarily derived from animal studies that are conducted under controlled conditions at varying dose levels. The animals used in the testing have demonstrated sensitivity to chemicals. In extrapolating from animals to humans, EPA uses appropriate safety factors which take into account the additional risks associated with sensitive populations such as children and the elderly.

In addition, EPA also uses health-protective exposure assumptions to define the "Reasonably Maximally Exposed" individual at the site as an additional health protective measure. These assumptions are designed to evaluate the various routes by which an individual may be exposed.

By utilizing conservative assumptions (i.e., exposure and toxicity), EPA increases the protectiveness of the assessment and provides adequate margins of protection for potentially exposed individuals.

In performing the risk assessment at the GM Site, EPA added to this already conservative process by using fish consumption values which assumed a consumption rate of 130 g/day (1/4 lb/day). This compares to a national fish consumption average of 6.5 g/day and is twice the high end of distribution value (95th percentile) of 65 g/day. The risk was also calculated over a 70 year period as opposed to the 30 year span typically used in risk assessments.

4.4.2 Comment: Before allowing GM to dispose of materials with PCB concentrations less than 10 ppm in the EDA, EPA should make GM clean up the mess that is currently in that area.

EPA Response: The EDA will be cleaned up to the specifications in the OU2 ROD. The sequence for the remediation of all contaminated areas has not been determined at this time. For reasons described in the preceding responses, EPA has determined that the remediation described in this ROD Amendment would advance the cleanup of the Raquette River, remove from the Site the stockpiled St. Lawrence River sediments, and allow for the installation of groundwater controls, and in so doing, would provide a significant environmental benefit.

4.5 Massena Economic Development Council

The comments summarized below were received from the Massena Economic Development Council.

4.5.1 Comment: The Massena Economic Development Council (Council) stated there may be a connection between highly chlorinated PCBs and environmental risk, but there is little evidence to suggest risk from lower chlorinated PCBs, such as those found at the Site. Nevertheless, EPA went from considering all forms of PCBs as *probable* cancer causing agents to characterizing them as *known* cancer causing agents.

The Council cited a study in the New England Journal of Medicine that found no evidence of increased breast cancer risk among women with high levels of organochlorines, such as DDT and PCBs. Researchers are now finding that the majority of cancers result from a complex set of variables, including genetic disposition, internal chemistry, and lifestyle. The Council stated that environmental efforts should refocus on factors that are of certain risk to human health and the environment.

EPA Response: As summarized in the EPA's Integrated Risk Information System (IRIS) chemical file for PCBs, the Agency reassessed the scientific literature on PCBs in 1996. At that time, EPA did not reclassify PCBs as a *known* human carcinogen but rather continues to classify PCBs as a *probable* human carcinogen. This classification is based on the adequacy of the animal studies and the limited human evidence. The New England Journal of Medicine article cited was not available at the time of EPA's re-evaluation, however, the Agency uses a weight of evidence approach that involves data from several organs and numerous studies to conclude the potential effects of PCBs on health. Several other human occupational studies cited in the IRIS file, provide suggestive evidence of the potential for PCBs to cause cancer in humans. EPA's peer-reviewed cancer reassessment concluded that PCBs are *probable* human carcinogens- not *known* human carcinogens as suggested by the comment. EPA is not alone in its

conclusions regarding PCBs. The International Agency for Research on Cancer has declared PCBs are probably carcinogenic to humans. The National Toxicology Program has stated that it is reasonable to conclude that PCBs are carcinogenic in humans. The National Institute for Occupational Safety and Health has determined that PCBs are a potential occupational carcinogen.

The suggestion that lower chlorinated PCBs have different health effects was also addressed in the reassessment and EPA concluded that all PCBs are probable human carcinogens. The Agency used the study by Brunner et al., 1996 (later published as Mayes et al. (1998) (Mayes study)) to provide the appropriate basis for the development of the cancer slope factors for PCBs. The Mayes study found liver tumors in female rats exposed to Aroclors 1260, 1254, 1242, and 1016 and in male rats exposed to Aroclor 1260. These mixtures contain overlapping groups of congeners that, together, span the range of congeners most often found in environmental mixtures. Based on this study, EPA concluded that all PCBs are probable human carcinogens.

As described in the chemical file, through partitioning, different portions of a PCB mixture are encountered through each exposure pathway. For example, the mixture fraction that adsorbs to sediment or soil tends to be higher in chlorine content and persistence than the original mixture; it also tends to be less inclined to metabolism and elimination and thus higher in persistence and toxicity. Consequently, ingestion of contaminated sediment or soil or inhaling contaminated dust can pose relatively high risks. Alternatively, the mixture fraction that dissolves in water or evaporates into air tends to be lower in chlorine content and persistence, so risks from ingesting water soluble congeners or inhaling evaporated congeners would tend to be lower, in the absence of contaminated sediment or dust. To reflect these environmental processes, EPA uses a tiered approach that considers how partitioning and bioaccumulation affect each exposure pathway.

4.5.2 Comment: Citing the risk of accidents, injury, and spillage, the Massena Economic Council opposes shipping materials with PCB concentrations between 10 and 50 ppm off-site. Such risks pose a greater threat to the community than if the low level material is deposited on-site under a cap. The Council supports EPA's proposal for off-site disposal, but at concentrations of 50 ppm or more. Additionally, the trucking in of clean fill is wasteful.

EPA Response: As stated earlier, EPA's selection of the 10 ppm PCB containment level reflects the overall concerns related to advancing the cleanup of the Site while balancing risk and the

concerns of the community. EPA does not believe that the transportation of materials with PCB concentrations between 10 and 50 ppm will present any unacceptable additional risk.

4.5.3 Comment: The Massena Economic Council expressed concern about the public hearing process, which has become a convenient soap box for activists and radicals. The hearings are not reflective of local concerns, and people have stopped attending because they question the validity of the entire process. The public hearing process is flawed in terms of determining community interest.

EPA Response: While we respectfully disagree with the comment, EPA will continue to try to improve on the community outreach process to be more reflective of the community's concerns.

4.6 Reynolds Metals Company

The comment summarized below was received from the Reynolds Metals Company.

4.6.1 Comment: The requirement to ship off-site materials with PCB concentrations greater than 10 ppm appears to be unwarranted, costly, and inconsistent with EPA regulations. The PCB Guidance, issued in June 1998, recognizes that bulk wastes can safely remain on-site at a facility like GM's at concentrations up to 50 ppm. TSCA requires that dredged sediments with PCB concentrations greater than 50 ppm be either incinerated, landfilled in a TSCA-approved chemical waste landfill, or disposed of by another method approved by EPA. Further, the Plan appears to provide no additional health or environmental benefits since shipping such low level material has a greater risk and cost than leaving this material on-site under a secure cover.

EPA Response: EPA uses nine evaluation criteria to select remedies for Superfund sites. Among the evaluation criteria is community acceptance. Based on the comments received during the public comment period for the 1995 Proposed Plan, this ROD Amendment was developed to address the most pressing environmental concerns and gain community acceptance.

ATTACHMENT A
POST-DECISION PROPOSED PLAN

General Motors Superfund Site

Massena, New York



Region 2

August 1998



Mark Your Calendar

August 21, 1998 –

October 5, 1998

Public comment period on the Post-Decision Proposed Plan for the General Motors Site.

Thursday, September 17, 1998

6:00 pm

Public Meeting at St. Regis Housing Authority Auditorium, Route 37, Hogansburg, New York

Community Role in Selection Process

EPA relies on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. This Proposed Plan is being distributed to solicit public comments regarding proposed changes to the 1990 ROD for the Site. A public comment period will begin on August 21, 1998 and continue through October 5, 1998. A public meeting will be held during the public comment period at the St. Regis Housing Authority Auditorium, Route 37, Hogansburg, New York on Thursday, September 17, 1998 at 6:00 p.m. to discuss the basis of the proposed changes.

EPA is soliciting comment on only a focused portion of the 1990 ROD for

PURPOSE OF POST-DECISION PROPOSED PLAN

This Post-Decision Proposed Plan (hereinafter the "Proposed Plan") describes changes to specific aspects of the December 17, 1990 Record of Decision (ROD) for the first Operable Unit (OU1) of the General Motors Corporation Superfund Site (the "Site") in Massena, NY. The 1990 ROD was issued by the U.S. Environmental Protection Agency (EPA), as lead agency, and concurred on by the New York State Department of Environmental Conservation (NYSDEC) and the St. Regis Mohawk Tribe (SRMT). The 1990 decision included the following elements: 1) dredging or excavation of materials containing polychlorinated biphenyls (PCBs) from the GM facility, nearby St. Regis Mohawk Tribal Lands, the St. Lawrence River, the Raquette River, and Turtle Creek; 2) treatment of all materials containing more than 10 parts per million (ppm) PCBs to reduce PCB concentrations to below 10 ppm; 3) disposal of the treated materials on the Site and capping with a vegetated soil cap which complies with NYS and Toxic Substances Control Act (TSCA) requirements for a chemical waste landfill; 4) control of surface water runoff to prevent further movement of contamination; and 5) extraction and treatment of contaminated groundwater.

In June 1995, EPA issued a Post-Decision Proposed Plan that called for raising the treatment level from 10 to 500 ppm PCBs. The additional material with PCB concentrations greater than 10 ppm but less than 500 ppm would have been contained on site. The 1995 Post-Decision Proposed Plan also recommended designation of the on-site containment area as a Corrective Action Management Unit and thermal desorption as the treatment method for the Site.

By the issuance of this Proposed Plan, EPA formally withdraws the June 1995 Post-Decision Proposed Plan.

The current proposal deals with only a focused portion of the 1990 ROD. EPA now proposes to dispose of off site, rather than treat, contaminated materials excavated/dredged from the St. Lawrence River and the Raquette River, along with materials excavated during the installation of the site-wide groundwater controls. All of these materials with PCB concentrations greater than the OU1 cleanup level of 10 ppm would be shipped off site for disposal at a secure facility. **EPA is *not* proposing to change any of the site-specific cleanup levels.**

the Site. These changes deal with the sediments and soils from the St. Lawrence River and Raquette River

and soils excavated during the installation of the site-wide groundwater controls. EPA is proposing to

allow for the off-site disposal of those sediments and soils rather than on-site treatment. EPA is *not* proposing to change any of the established site-specific cleanup goals.

EPA, after consultation with NYSDEC and the St. Regis Mohawk Tribe, will make a determination regarding changes to the 1990 remedy for the Site only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

In addition to oral comments, which may be submitted at the public meeting, *written* comments may be submitted and should be addressed to:

Anne Kelly, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

The Record of Decision for this Site as well as all supporting documentation for this decision can be consulted for more detailed information. These documents are available at the following locations:

U.S. Environmental Protection Agency
290 Broadway, 18th Floor
New York, N.Y. 10007-1866
By appt.: 212-637-3263

Massena Public Library
41 Glenn Street, Massena, NY 13662
Summer Hours:
Mon & Fri, 9:30 am–5:00 pm;
Tues–Thur, 9:30 am–9:00 pm;
Sat & Sun, closed
Hours after September 14, 1998
Mon–Thur, 9:30 am–9:00 pm;
Fri & Sat, 9:30 am–5:00 pm; Sun, closed

St. Regis Mohawk Tribe
Environment Division
Health Services Building
Hogansburg, NY 13665
By appt.: 518-358-3141

EPA is issuing this Proposed Plan as part of its public participation responsibilities under Section 117 (a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, and Section 300.430(f) of the National Contingency Plan (NCP).

Background

The General Motors-Central Foundry Division (currently Powertrain Division) (GM) Site is located on Rooseveltown Road in St. Lawrence County, Massena, New York. The GM facility is bordered on the north by the St. Lawrence River, on the east by St. Regis Mohawk Tribal Lands, on the south by the Raquette River, and on the west by the Reynolds Metals Company and property owned by Conrail (Figure 1).

The Site was described in a 1990 Record of Decision (ROD) as several waste areas at an active GM manufacturing facility and includes contaminated soils on GM property and on St. Regis Mohawk Tribal lands, contaminated sediments in the St. Lawrence River, Raquette River, Turtle Creek, associated riverbanks and wetlands, and contaminated groundwater. The portions of the Site relevant to this Proposed Plan are the St. Lawrence River, Raquette River, and groundwater (Figure 2).

Land use in the area surrounding the Site consists of mixed residential and industrial uses. The Reynolds Metals Company facility, immediately to the west of the Site, and the Alcoa facility, approximately 8 miles to the west, have been investigated by EPA as well as NYSDEC. St. Lawrence River flows are controlled by the Moses-Saunders Power Dam, located approximately four miles upstream from the Site.

The GM facility consists of approximately 270 acres of industrial and undeveloped land. Wetlands lie to the east of the facility in an area surrounding Turtle Creek. There are no known federally listed endangered or threatened species known to inhabit the St. Lawrence River. However, the River does support a number of New York State-listed endangered, threatened, and special concern fish species. The River and the adjacent areas also provide nesting for a variety of water birds and shore birds. Federally listed endangered falcons and bald eagles have been reported in the Massena area.

Site History

GM has operated an aluminum diecasting plant at the Site since 1959. Until 1980, polychlorinated biphenyls (PCBs) were a component of hydraulic fluids used in diecasting machines at the GM facility. PCBs provided protection against fire and thermal degradation in

the high temperature environment of the diecasting machines. GM no longer uses the diecasting process or PCBs at the facility; however, PCB-contaminated materials remain at the Site.

The GM site was placed on the Superfund National Priorities List (NPL) in September 1983 as a result of contamination related to GM's past waste disposal practices. In 1985, GM entered into an administrative order on consent with EPA to perform a remedial investigation and feasibility study (RI and FS) to determine the extent to which PCBs were present in the soil, groundwater, and sediments. The RI and FS were completed in June and November 1989, respectively.

Based on the information provided in the RI and FS, EPA issued two RODs for the site. The first, or Operable Unit 1 (OU1) ROD, was issued in December 1990 and addressed contamination in the St. Lawrence River, GM site soils, St. Regis Mohawk Tribal soils and sedi-

ments, the North Disposal Area, the Raquette River, surface water runoff, groundwater, and lagoons (Figure 2).

The second Operable Unit (OU2) ROD was issued in March 1992 and addressed contamination in the Industrial Landfill, East Disposal Area, and groundwater that flowed beneath those areas (Figure 2).

After the RODs were issued, EPA issued a Unilateral Administrative Order (UAO) to GM for OU1 in April 1992, and an Administrative Order to GM for OU2 in August 1992. The UAOs specified the requirements for GM's performance of the remedial design and remedial action of the two operable units.

GM began implementation of the St. Lawrence River sediment removal project in 1994. In 1995, the dredging of the St. Lawrence River was completed and was successful in removing the majority of the PCB mass in the St. Lawrence River adjacent to the GM site.

Figure 1
Site Location Map

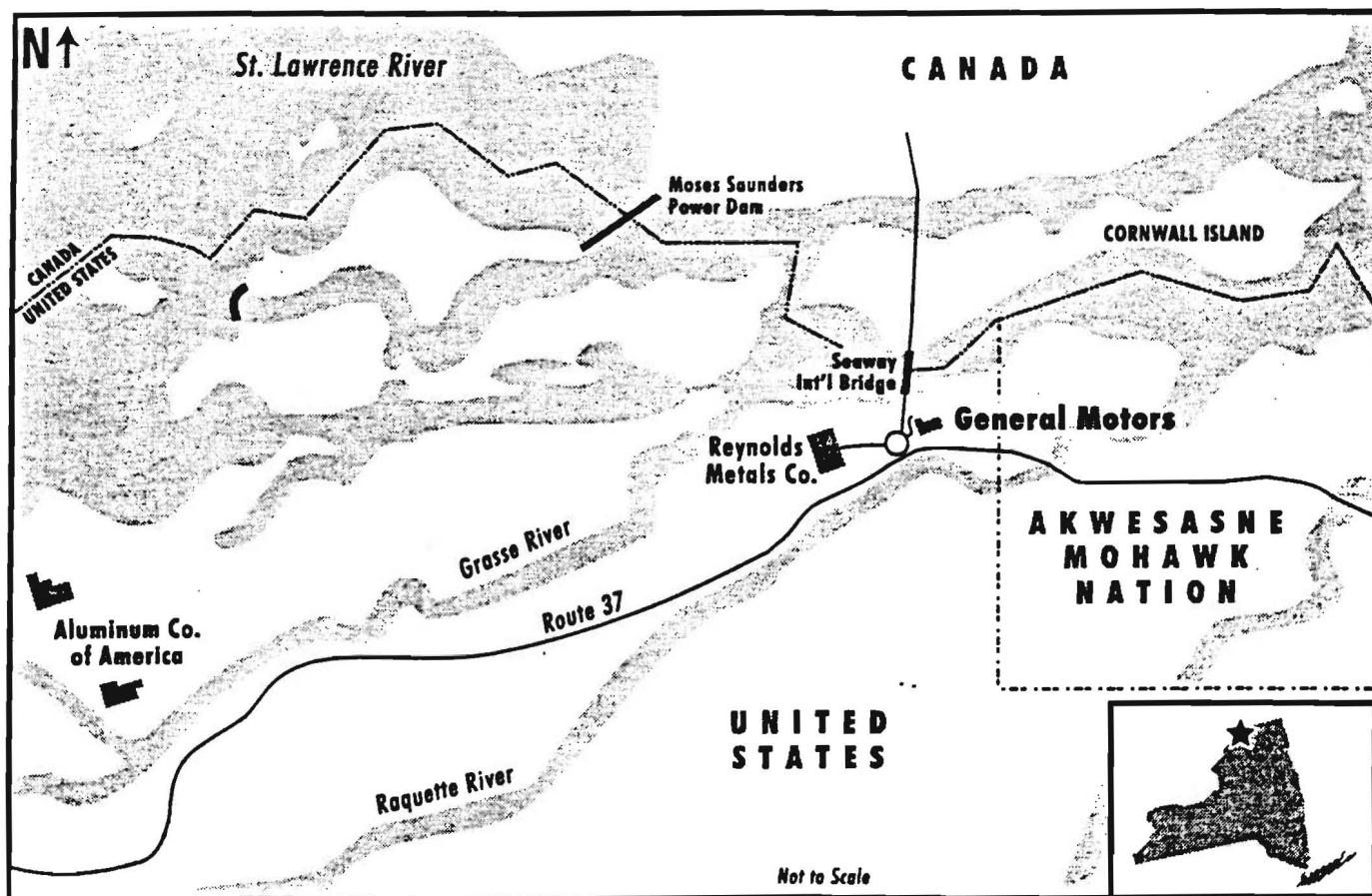
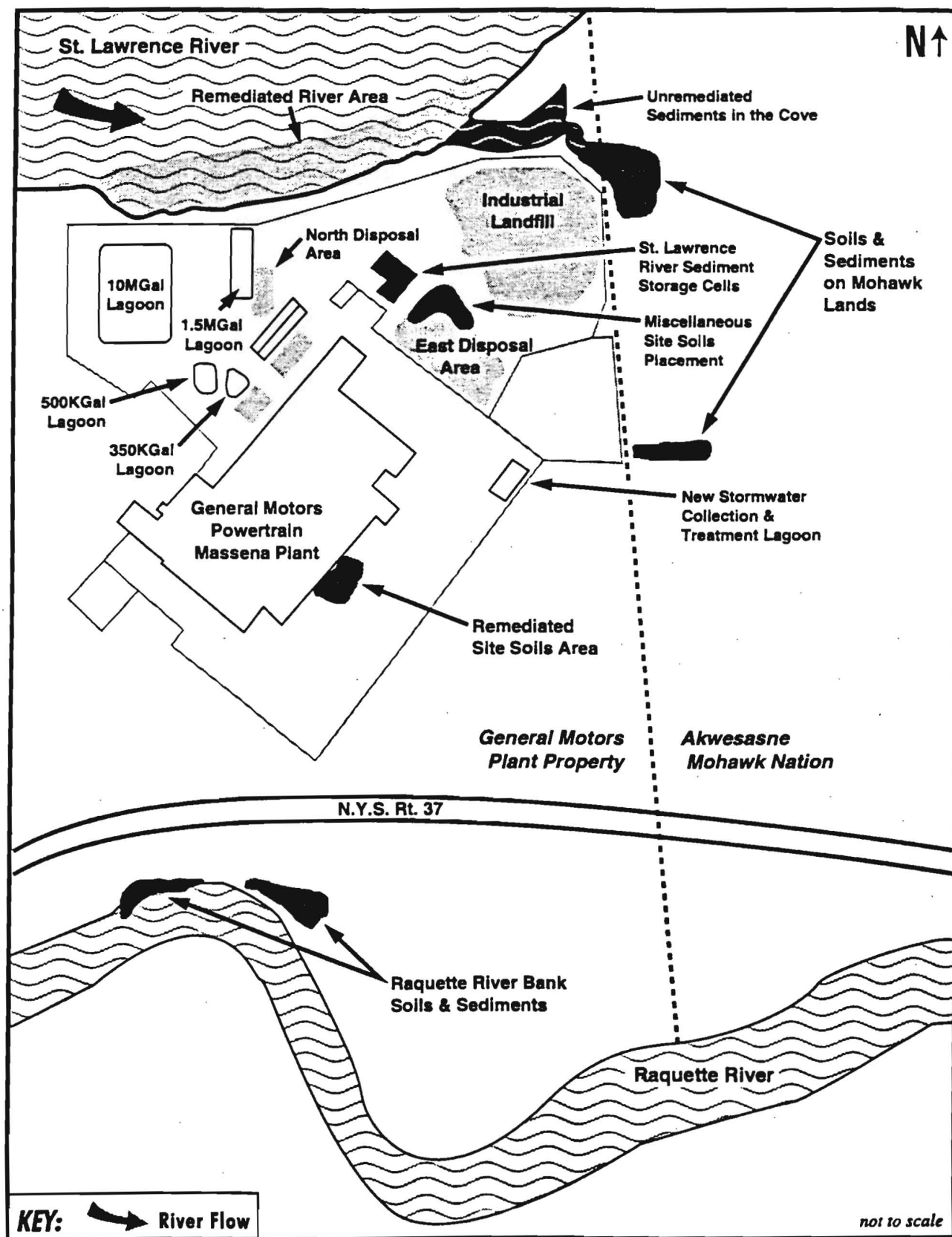


Figure 2
PCB Contamination in the General Motors Site



Scope and Role of Action

This Proposed Plan is focused on three areas of the Site and suggests a change to one key element of the remedy selected in 1990 for those areas. The OU1 ROD addressed several areas of contamination (listed above) and specified that on-site treatment would be used to reduce the level of PCBs from greater than 10 ppm to less than 10 ppm. This proposed plan deals only with the materials excavated/dredged from the St. Lawrence River and Raquette River and those soils excavated during the installation of site-wide groundwater controls, and recommends that contaminated materials with concentrations of PCBs greater than 10 ppm be shipped off site for disposal at a secure facility rather than treated on site.

EPA is *not* proposing to change the 1990 cleanup level for the any part of the Site. The only modification being proposed is the off-site disposal of materials greater than 10 ppm PCBs associated with the St. Lawrence and Raquette Rivers and the soils excavated during installation of site-wide groundwater controls rather than on-site treatment of those materials.

Summary of Original and Proposed Changes

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost-effective, comply with applicable or relevant and appropriate requirements or justify a waiver from these requirements, and utilize permanent solutions, alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

A summary of the original remedy and the proposed changes to the remedy is presented below. The time frames listed below reflect the total time required to implement the remedy. The time frames do not include the time required to design the remedy.

Existing ROD

Since this Proposed Plan recommends changes to very specific aspects of the 1990 ROD, only the relevant portions of 1990 the ROD will be described below.

St. Lawrence River

The remedy for the St. Lawrence River had three major components: dredging sediments greater than 1 ppm PCBs, treatment of dredged materials with PCB concentrations greater than 10 ppm, and on-site containment of untreated and treated sediments with concentrations of PCBs less than and equal to 10 ppm (Table 1).

The 1990 OU1 ROD states "All PCB contaminated sediments in the hotspots will be removed given the technological limitations associated with dredging." This effort was undertaken in 1995 and resulted in the removal of approximately 10,230 cubic yards (cy) of PCB-contaminated sediments. All dredged materials with PCB concentrations greater than 10 ppm were to be treated to levels below 10 ppm, and the treated and untreated sediments with PCB concentrations of 10 ppm and less were to be disposed of on GM property and covered with a vegetated soil cap meeting New York State and Toxic Substances Control Act (TSCA) requirements for a chemical waste landfill. The estimated cost for on-site treatment of the St. Lawrence river sediments is \$4.6 million. This cost estimate does not include the fixed cost for dredging of the St. Lawrence River, which was approximately \$7 million.

Table 1
Volume Estimates (Cubic Yards) and Contaminant Levels

	LEVELS	
	<10 PPM PCBs	>10 PPM PCBs
St. Lawrence River	n/a	10,230
Raquette River	1,400	2,600
Soils from Site-Wide Groundwater Controls	17,600	5,100

Raquette River

The remedy for the Raquette River had the same three components (listed above). The ROD states "All PCB-contaminated sediments in the hotspots will be removed given the technological limitations associated with dredging." Sampling after the ROD was issued has indicated that bank soils are contaminated and must also be excavated. All dredged materials or excavated bank soils with concentrations of PCBs greater than 10 ppm (approximately 2,600 cy) were to be treated to levels below 10 ppm.

The treated and untreated sediments (approximately 1,400 cy) with concentrations of PCBs of 10 ppm or less were to be disposed of on GM property and covered with a vegetated soil cap meeting New York State and TSCA requirements for a chemical waste landfill. The estimated cost for treatment of the Raquette River sediments and soils is \$1.2 million. This estimate does not include the fixed cost of the excavation/dredging of Raquette River sediments/soils.

Groundwater Control System Soils

The soils that would be excavated during construction of the groundwater remedy were not specifically described in the 1990 ROD. Such soils, which have concentrations of PCBs greater than 10 ppm can, however, be considered to fall under the category of contaminated soils from "miscellaneous areas" which were specifically described in the OU1 ROD. The OU1 ROD indicated that contaminated soils with PCB concentrations greater than 10 ppm were to be excavated and treated on site. The treated soils with PCB concentrations less than or equal to 10 ppm were to be contained on GM property and covered with a vegetated soil cap meeting New York State and TSCA requirements for a chemical waste landfill.

The anticipated volume of soils to be excavated during construction of groundwater controls is approximately 22,700 cy. However, this volume estimate is dependent upon the type and configuration of the groundwater control system. Without a complete engineering design and additional data, an accurate volume is hard to estimate. EPA, NYSDEC, and SRMT are currently in the process of reviewing a sampling plan which, when implemented, will help determine the type of groundwater control system to be used at the site. The volume

estimated in this Proposed Plan includes soils from the downgradient "footprint" of a cutoff wall (12,900 cy) as well as additional soils at the landfill toe of slope which will be excavated (9,800 cy). Based on limited sampling, estimates indicate that approximately 5,100 cy of soil will contain concentrations of PCBs which are greater than 10 ppm. Although these volumes will change during design, EPA is soliciting comment on the off-site disposal (rather than treatment) of the soils greater than 10 ppm PCBs that are excavated during the construction of site-wide groundwater controls and not the type or configuration of such controls. The cost for treatment (as required by the OU1 ROD) for soils excavated during the installation of the site-wide groundwater controls based on the volumes listed above is estimated to be \$2.4 million.

The approximate total cost for treating the materials dredged/excavated from the St. Lawrence River, Raquette River, and site-wide groundwater controls with PCB concentrations greater than 10 ppm is \$8.2 million. The time estimated for implementation of the work for these aspects of the 1990 remedy is approximately 2-3 years. These estimated costs and time frames to implement reflect only the treatment of the materials with PCB concentrations greater than 10 ppm and do not include the cost or time frames for the excavation or dredging of the materials, which are fixed (Table 2).

Proposed Changes to the Remedy

The proposed changes do not suggest a change in any of the site-specific cleanup levels but deal only with how the sediments/soils are handled *after* they are excavated or dredged. The proposed changes recommend that soils and sediments with PCB concentrations greater than 10 ppm, which have been removed from the St. Lawrence River and will be removed Raquette River, and soils excavated during the installation of site-wide groundwater controls, be disposed of off site rather than treated on site (Table 3).

St. Lawrence River

The only change to the remedy for the St. Lawrence River selected in 1990 would be the elimination of on-site treatment of the dredged materials. Instead, the

Table 2
Incremental Costs Associated with
On-Site Treatment and Off-Site Disposal for St. Lawrence,
Raquette River Sediments and Groundwater Control System Soils

LOCATION AND VOLUME > 10 PPM PCB (CY)	TREATMENT COSTS (\$M) (AS PER 1990 ROD)	DISPOSAL COST (\$M) (AS PER PROPOSED CHANGE)
St. Lawrence River (10,230 cy)	\$ 4.6	\$ 2.3
Raquette River (2,600 cy)	\$ 1.2	\$ 0.7
Site-wide Groundwater Controls (5,100 cy)	\$ 2.4	\$ 1.4
TOTAL	\$ 8.2	\$ 4.4

dredged materials with concentrations of PCBs greater than 10 ppm would be disposed of off site in a secure facility.

During the processing of the sediments after they were dredged, sediments from areas of high contaminant levels have mixed with sediments from areas with lower concentrations. This is due to the handling and processing of sediments after dredging. The sediments were pumped from the river into a settling pond. From that settlement pond, the water was sent to the treatment system to further remove PCBs. During this processing, the materials were mixed and, as a result, all St. Lawrence River sediments which were dredged, processed, and stored on site in 1995 have an average PCB concentration of 200 ppm. Therefore, all of the stockpiled St. Lawrence River sediments would be shipped off site for disposal to a Resource Conservation and Recovery Act (RCRA)- and TSCA-approved facility. The estimated cost for the off-site disposal of the approximately 10,230 cy of sediments dredged from the St. Lawrence River is \$2.3 million.

Raquette River

The only change to the remedy for the Raquette River selected in 1990 would be the elimination of treatment for the dredged/excavated sediments and soils. The cleanup level for the Raquette River remains the same. However, instead of on-site treatment, the excavated/

dredged materials with PCB concentrations greater than 10 ppm (2,600 cy) would be disposed of off site in a RCRA- and TSCA-approved facility. The remaining 1,400 cy of materials with PCB concentrations of 1-10 ppm would be contained on site and covered with a vegetated soil cap meeting New York State and TSCA requirements for chemical waste landfill. The estimated cost for the off-site disposal of approximately 2,600 cy soils/sediments with PCB concentrations greater than 10 ppm is \$0.7 million. This cost represents only the off-site disposal cost of the Raquette River materials which have PCB concentrations greater than 10 ppm and does not include the costs for excavation/dredging of the sediments/soils, which are fixed.

Groundwater Control System Soils

The only change to the remedy selected in 1990 for soils excavated during the construction of the site-wide groundwater control system would be the elimination of treatment for the excavated soils. Any soils with PCB concentrations greater than 10 ppm excavated during the installation of the groundwater control system would be shipped off site for disposal at a RCRA- and TSCA-approved facility. This includes an area of contamination at the toe of the landfill slope. The remaining soil with PCB concentrations less than or equal to 10 ppm (approximately 17,600 cy) would be contained on site under a soil cap meeting New York State and

TSCA requirements for a chemical waste landfill. The estimated cost for the off-site disposal of the estimated 5,100 cy of soils with PCB concentrations greater than 10 ppm to be removed during the installation of site-wide groundwater controls is \$1.4 million (see discussion above regarding volume estimates). This cost reflects only the cost for off-site disposal of the excavated soils and does not include the costs of the installation of a groundwater control system.

The total approximate cost for the off-site disposal of sediments and soils with PCB concentrations greater than 10 ppm removed from the St. Lawrence River, Raquette River, and soils excavated during the construction of site-wide groundwater controls is \$4.4 million (Table 2).

Comparison of Original Remedy and Proposed Changes

During the detailed evaluation of remedial alternatives, each alternative is assessed against the following nine evaluation criteria: overall protection of human health and the environment; compliance with applicable or relevant and appropriate requirements; long-term effectiveness and permanence; reduction of toxicity, mobility, or volume through treatment; short-

term effectiveness; implementability; cost; and state and community acceptance. The evaluation criteria and comparative analysis of the existing remedy and the proposed changes based upon these evaluation criteria follows below.

Overall Protection of Human Health and the Environment

Both remedies (existing and proposed changes) are considered to be protective of human health and the environment. Both remedies involve the removal of contaminants to previously established site-specific cleanup levels and eliminate exposure to PCBs, thereby minimizing availability to aquatic life and preventing migration into the groundwater.

Compliance with ARARs

Applicable or relevant and appropriate requirements (ARARs) are those Federal, State, or Tribal environmental and public health regulations that apply to remedial activities at a site. There are three classifications of ARARs: chemical-specific, which are health- or risk-based concentration limits; location-specific, which are based on the geographical location of a site and its sur-

Table 3
Comparison of Proposed Changes to 1990 Selected Remedy

1990 REMEDY	PROPOSED CHANGES
Dredge the St. Lawrence River to cleanup goals	No change
Treat dredged St. Lawrence River sediments with >10 ppm PCBs	Off-site disposal of dredged sediments with >10 ppm PCBs
Dredge Raquette River and excavate riverbank soils to cleanup goals	No change
Treat Raquette River sediments with >10 ppm PCBs	Off-site disposal of dredged sediments with >10 ppm PCBs
Downgradient groundwater recovery and treatment	No change
Treatment of soils >10 ppm PCBs excavated during installation of site-wide groundwater controls	Off-site disposal of excavated soils with >10 ppm PCBs

roundings; and action-specific, which are usually technology- or activity-based requirements or limitations on actions taken with respect to hazardous waste.

Both the 1990 remedy and the proposed changes to the remedy comply with ARARs.

TSCA is a federal law that regulates PCBs. TSCA and its regulations require that dredged sediments with concentrations of PCBs greater than or equal to 50 ppm be either incinerated, landfilled in a TSCA-approved chemical waste landfill, or disposed of by another method approved by EPA. Both the existing remedy and the proposed change would comply with TSCA treatment and disposal requirements (40 CFR Parts 761.60-761.9). Landfilling of sediments with PCB concentrations of 50 ppm or greater would be performed in an off-site TSCA-approved facility. All necessary approvals would be obtained prior to disposal to ensure sediments meet the facilities permit restrictions.

RCRA is a federal law which regulates the management of hazardous waste. PCB-contaminated materials are not considered a hazardous waste under this federal law. However, NYS regulates PCB-contaminated materials with concentrations greater than 50 ppm as a hazardous waste. Both remedies would comply with all relevant and appropriate RCRA requirements and/or the corresponding NYS hazardous waste requirements for the identification, transportation, treatment, and disposal of hazardous waste (40 CFR Parts 261 through 264 and 268).

Another New York State ARAR that is applicable to the alternatives being considered for the GM site in this Proposed Plan is the State Pollutant Discharge Elimination System (SPDES) which governs the discharge of water into the St. Lawrence River. Under both the proposed and existing remedies, all water that is removed from sediments would be treated and discharged to the St. Lawrence River in compliance with SPDES requirements.

The SRMT has identified ARARs which are applicable within the Mohawk Nation of Akwesasne. Since this Proposed Plan does not propose any changes to the selected remedy for Tribal lands, these ARARs will not be triggered. It is important to note, however, that although the Tribal ARARs are not triggered by the changes described in this plan, all efforts will be made to achieve Tribal ARARs for any future action taken on Tribal lands.

Federal and NYS requirements for air emissions are action-specific ARARs or guidance (6 NYCRR Parts 200,201, 211,219 and 257; NYS Air Guide-1) which would be met. These standards apply to and would be met by the original remedy.

Long-Term Effectiveness and Permanence

In general, disposal remedies provide a lesser degree of permanence in remediating contamination when compared to treatment alternatives which destroy contaminants. The 1990 remedy would result in treatment of material whereas the proposed changes to the remedy would not include treatment. Off-site landfilling does, however, provide for permanent removal of contaminants from the Site and provide for long-term management in a permitted, secure, monitored location where adequate and reliable controls are provided. Therefore, landfilling of PCBs with concentrations above 10 ppm and on-site containment of materials with PCB concentrations of 10 ppm and less under a vegetated cap meeting New York State and TSCA requirements for a chemical waste landfill would reliably contain the contaminated materials over time.

Reduction in Toxicity, Mobility, or Volume Through Treatment

The 1990 remedy involves the use of on-site treatment by thermal desorption to reduce the toxicity, mobility, and volume of the sediments and soils removed from the St. Lawrence River and Raquette River and soils excavated during the installation of site-wide groundwater controls. The proposed changes to this remedy do not employ treatment to address the contaminated material considered in this proposed plan. Treatment by thermal desorption would provide better reduction of the waste's toxicity, mobility, and volume because of the removal and eventual destruction of PCBs. However, disposal of these materials in a secure landfill effectively reduces the mobility of the contaminants.

Short-Term Effectiveness

In general, effective alternatives that can be implemented quickly with little risk to human health and the environment are favored under this criterion. The proposed changes to the remedy are more effective in the short-term than the 1990 remedy because they can be implemented more quickly. The proposed remedy would be implemented in approximately 6 months to a year, rather than the 2–3 years originally planned for the procurement, mobilization, and operation of the thermal desorption treatment system. These time estimates only reflect the time needed for off-site disposal or on-site treatment of materials *after* they are excavated or dredged and does not include the time needed for excavation or dredging, which remains the same.

Although the treatment unit would be operated in compliance with applicable regulations, potential air quality impacts from the operation of the thermal desorber are possible. These risks would be eliminated by using off-site disposal. Further, potential risks to on-site workers would be lessened by reducing the materials handling requirements needed for on-site treatment. The potential short-term risks associated with transporting PCB-contaminated sediments to an off-site landfill would increase. However, these risks are estimated to be small due to the short duration of off-site disposal activities.

Implementability

Both the 1990 remedy and the proposed remedy are implementable from an engineering and technical standpoint. Off-site landfilling is more readily implemented because the issues of procuring, mobilizing, and operating the treatment system are avoided. The direct load-out of sediments from the dewatering operations or from the temporary stockpile area and the availability of landfill capacity make the off-site land disposal option highly implementable.

Cost

The capital costs for the existing and proposed changes to the remedy are presented above. Typically, a present worth analysis is performed to evaluate expenditures that occur over different time periods by discounting all future costs to a common base year, usually the current

year. This allows the cost of the remedial action alternatives to be compared on the basis of a single figure representing the amount of money that, if invested in the base year and spent as needed, would be sufficient to cover the costs associated with the remedial action over its planned life.

In the case of the existing and proposed changes to the remedy, the present worth analysis is not applicable since there is only a one time capital investment. There are no long-term monitoring costs since the waste would either be destroyed or sent for off-site disposal. Any materials left on site would have PCB concentrations less than 10 ppm. Although the property would be monitored as long as contaminants remain on site, the monitoring would not be specifically for the materials with PCB concentrations less than or equal to 10 ppm but for the balance of the Site. Since the costs of monitoring apply to the entire site, they are not affected by this change and therefore not included in this comparison analysis.

The capital cost for the relevant portions of the original remedy which includes the on-site treatment of materials dredged or excavated from the St. Lawrence River and Raquette River and site-wide groundwater controls is approximately \$8.2 million. The capital cost for the off-site disposal of those materials at an approved facility is \$4.4 million. This represents a decrease of \$3.8 million. Based on these estimates, off-site disposal is significantly more cost-effective.

State Acceptance

The State of New York concurs with EPA's proposed alternative.

SRMT & Community Acceptance

The St. Regis Mohawk Tribe has provided input to EPA during the development of this Proposed Plan. SRMT will comment officially on the proposal during the public comment period.

Community acceptance for the proposed remedy will be assessed in the amended Record of Decision following the review of public comments received on this Proposed Plan.

Proposed Remedy

Based upon an evaluation of the two remedies, EPA recommends that the remedy as selected in the 1990 Record of Decision be changed to allow for the off-site disposal, rather than on-site treatment, of materials excavated or dredged from the St. Lawrence River and Raquette River and soils excavated during the installation of site-wide groundwater controls. All dredged/excavated materials with PCB concentrations above 10 ppm would be transported off site to a RCRA- and TSCA-approved landfill. All dredged/excavated materials with PCB concentrations less than or equal to 10 ppm would be contained on the GM site, in keeping with the original 1990 Record of Decision. The cleanup goals set by the 1990 OU1 ROD are not changed.

Next Steps

After EPA has presented the proposed cleanup remedy at the public meeting and has received comments and questions during the public comment period, EPA will consider and respond to questions and comments in a Responsiveness Summary. The Responsiveness Summary will be appended to an amended ROD for the GM site, which will document all changes to the 1990 ROD. &

Mailing List Additions

If you or someone you know would like to be placed on the General Motors Superfund Site mailing list, please fill out this form and mail to:

Mary Helen Cervantes-Gross
Chief, Public Outreach Branch
U.S. Environmental Protection Agency
290 Broadway, 26th Floor
New York, NY 10007-1866

NAME

ADDRESS

TELEPHONE

FAX

E-MAIL

AFFILIATION

ECMSO 1600m0991

ATTACHMENT B
PUBLIC NOTICES



THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
INVITES PUBLIC COMMENT ON THE
POST-DECISION PROPOSED PLAN FOR THE CLEANUP OF THE GENERAL MOTORS
SUPERFUND SITE, MASSENA, ST. LAWRENCE COUNTY, NEW YORK

The U.S. Environmental Protection Agency (EPA) invites public comment on proposed changes to the remedy selected by EPA in its 1990 Record of Decision for the General Motors (GM) Superfund Site (hereinafter the "Site") in Massena, New York. EPA will accept comments during a public comment period, which begins on August 21, 1998, and ends on October 5, 1998. Written comments may be submitted to the following address:

*Anne Kelly, Remedial Project Manager, U.S. Environmental Protection Agency
290 Broadway, 20th Floor, New York, NY 10007-1866*

EPA's Current Selected Remedy

The Site consists of soil, sediments, and groundwater contaminated with polychlorinated biphenyls (PCBs) and related compounds. In 1990, EPA issued a Record of Decision that presented a cleanup plan for the Site. The 1990 decision included the following elements: 1) dredging or excavation of materials containing PCBs from the GM facility, nearby St. Regis Mohawk Tribal Lands, the St. Lawrence River, the Raquette River, and Turtle Creek; 2) treatment of all materials containing more than 10 parts per million (ppm) of PCBs to reduce PCB concentrations to below 10 ppm; 3) disposal of the treated materials on the Site and capping with a vegetative soil cap which complies with NYS and Toxic Substances Control Act (TSCA) requirements for a chemical waste landfill; 4) control of surface water runoff to prevent further movement of contamination; and 5) extraction and treatment of contaminated groundwater.

In June 1995, EPA issued a Post-Decision Proposed Plan that called for raising the treatment level from 10 to 500 ppm. The additional material with PCB concentrations greater than 10 ppm but less than 500 ppm would have been contained on site. The 1995 proposal also recommended designation of the on-site containment area as a Corrective Action Management Unit and thermal desorption as the treatment method for the Site.

By the issuance of this August 1998 Post-Decision Proposed Plan, EPA formally withdraws the June 1995 Post-Decision Proposed Plan.

Proposed Changes to the Selected Remedy

EPA is proposing to revise portions of the remedy selected in 1990 and would like the public to consider and comment on the changes presented below. Although the 1990 Record of Decision addressed several areas of contamination (listed above), this proposal deals only with how the materials dredged from the St. Lawrence and Raquette Rivers, and those soils excavated during the installation of site-wide groundwater controls, are managed after they are dredged or excavated. These proposed changes are equally protective of human health and the environment, but are significantly less expensive and could be implemented more quickly than the original selected remedy.

EPA is proposing to eliminate on-site thermal desorption treatment as a component of the remedy. EPA now proposes to dispose of off site, rather than treat, contaminated materials dredged from the St. Lawrence and Raquette Rivers along with materials excavated during the installation of the site-wide groundwater controls. Materials from these areas with PCB concentrations greater than 10 ppm would be shipped off site to a facility that meets federal and state requirements for a chemical waste landfill. Materials from these

areas with PCB concentrations of 1 to 10 ppm would be contained on site and covered with a vegetative soil cap meeting NYS and TSCA requirements for a chemical waste landfill cover.

EPA is not proposing changes to the cleanup goals established for the Site. The goals include the removal of sediments from the St. Lawrence and Raquette Rivers with PCB levels exceeding 1 ppm and removal of soils excavated during the installation of the site-wide groundwater controls with PCB levels exceeding 10 ppm.

The cost of the proposed changes is estimated to be \$4.4 million, while the estimated cost for these aspects of the remedy selected in 1990 is \$8.2 million. The reduction in cost associated with the proposed changes results from a change in market conditions which has significantly improved the cost-effectiveness of off-site disposal as compared to on-site treatment. In addition, the proposed remedy would be implemented in approximately 6 months to a year, rather than the 2 to 3 years originally planned for the procurement, mobilization, and operation of the thermal desorption treatment system.

For More Information

A copy of the 1990 Record of Decision and related technical documents can be reviewed at the following locations:

U.S. Environmental Protection Agency
290 Broadway, 18th Floor, New York, NY 10007-1866
By appt.: 212-637-3263

Massena Public Library, 41 Glenn Street, Massena, NY 13662
Summer Hours: Mon & Fri, 9:30 am-5:00 pm;
Tues-Thur, 9:30 am-9:00 pm; Sat & Sun, closed
Hours after September 14, 1998: Mon-Thur, 9:30 am-9:00 pm;
Fri & Sat, 9:30 am-5:00 pm; Sun, closed

St. Regis Mohawk Tribe, Environment Division
Health Services Building, Hogansburg, NY 13665
By appt: 518-358-3141



Mark Your Calendar

Public Meeting
Thursday, Sept. 17, 1998
6:00 pm
St. Regis Housing
Authority Auditorium,
Hogansburg, New York



THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INVITES PUBLIC COMMENT ON THE

POST-DECISION PROPOSED PLAN FOR THE CLEANUP OF THE GENERAL MOTORS SUPERFUND SITE, MASSENA, ST. LAWRENCE COUNTY, NEW YORK

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Anne Kelly, Remedial Project Manager, U.S. Environmental Protection Agency
290 Broadway, 20th Floor, New York, NY 10007-1366

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In June 1995, EPA issued a Post-Decision Proposed Plan that called for raising the treatment level from 10 to 500 ppm. The additional material with PCB concentrations greater than 10 ppm but less than 500 ppm would have been contained on site. The 1995 proposal also recommended designation of the on-site containment area as a Corrective Action Management Unit and thermal desorption as the treatment method for the Site.

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EPA is proposing to eliminate on-site thermal desorption treatment as a component of the remedy. EPA now proposes to dispose of off site, rather than treat, contaminated materials dredged from the St. Lawrence and Raquette Rivers along with materials excavated during the installation of the site-wide groundwater controls. Materials from these areas with PCB concentrations greater than 10 ppm would be shipped off site to a facility that meets federal and state requirements for a chemical waste landfill. Materials from these areas with PCB concen-

trations of 1 to 10 ppm would be contained on site and covered with a vegetative soil cap meeting NYS and TSCA requirements for a chemical waste landfill cover.

EPA is not proposing changes to the cleanup goals established for the Site. The goals include the removal of sediments from the St. Lawrence and Raquette Rivers with PCB levels exceeding 1 ppm and removal of soils excavated during the installation of the site-wide groundwater controls with PCB levels exceeding 10 ppm.

The cost of the proposed changes is estimated to be \$4.4 million, while the estimated cost for these aspects of the remedy selected in 1990 is \$8.2 million. The reduction in cost associated with the proposed changes results from a change in market conditions which has significantly improved the cost-effectiveness of off-site disposal as compared to on-site treatment. In addition, the proposed remedy would be implemented in approximately 6 months to a year, rather than the 2 to 3 years originally planned for the procurement, mobilization, and operation of the thermal desorption treatment system.

For More Information

A copy of the 1990 Record of Decision and related technical documents can be reviewed at the following locations:

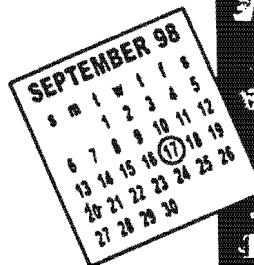
U.S. Environmental Protection Agency
290 Broadway, 18th Floor, New York, NY 10007-1866
By appt.: 212-637-3263

Massena Public Library, 41 Glenn Street, Massena, NY 13662
Summer Hours: Mon & Fri, 9:30 am-5:00 pm;
Tues-Thur, 9:30 am-9:00 pm; Sat & Sun, closed
Hours after September 14, 1998: Mon-Thur, 9:30 am-9:00 pm;
Fri & Sat, 9:30 am-5:00 pm; Sun, closed

St. Regis Mohawk Tribe, Environment Division
Health Services Building, Hogansburg, NY 13665
By appt: 518-358-3141

Mark Your Calendar

Public Meeting
Thursday, Sept. 17, 1998
6:00 pm
St. Regis Housing
Authority Auditorium,
Hogansburg, New York





**The United States Environmental Protection Agency
Announces an Extension of
The Public Comment Period on the
Post-Decision Proposed Plan for the Cleanup of the
General Motors Superfund Site
Massena, St. Lawrence County, New York**

The U.S. Environmental Protection Agency (EPA) has extended the public comment period on the Post-Decision Proposed Plan for the General Motors Superfund Site in Massena, New York. The public comment period, which began on August 21 and was scheduled to end on October 5, has been extended an additional 8 days to October 13, 1998, at the request of the Environment Division of the St. Regis Mohawk Tribe. Comments on EPA's proposed cleanup plan must be received no later than October 13, 1998, to be considered in EPA's final decision. Comments may be sent to:

***Anne Kelly, Remedial Project Manager, U.S. Environmental Protection Agency
290 Broadway, 20th Floor, New York, NY 10007-1866***

EPA proposes to dispose of off-site, rather than treat on-site, contaminated materials dredged from the St. Lawrence and Raquette Rivers along with materials excavated during the installation of the site-wide groundwater controls. Materials from these areas with polychlorinated biphenyl (PCB) concentrations greater than 10 parts per million (ppm) would be shipped off site to a facility that meets federal and state requirements for a chemical waste landfill. Materials from these areas with PCB concentrations of 1 to 10 ppm would be contained on site and covered with a vegetative soil cap meeting NYS and Toxic Substances Control Act requirements for a chemical waste landfill cover.

EPA is not proposing changes to the cleanup goals established for the site. The goals include the removal of sediments from the St. Lawrence and Raquette Rivers with PCB levels exceeding 1 ppm and removal of soils excavated during the installation of the site-wide groundwater controls with PCB levels exceeding 10 ppm.

A complete analysis of EPA's proposed remedy, as well as other site-related documents can be reviewed at the following locations:

**Massena Public Library
41 Glenn Street
Massena, NY 13662**

**St. Regis Mohawk Tribe, Environment Division
Health Service Building
Hogansburg, NY 13665
By Appointment: 518-358-3141**

For more information about this site, please call Anne Kelly at 212-637-4262 or Mary Helen Cervantes, Community Relations Coordinator, at 212-637-3673.

ATTACHMENT C
SIGN-IN SHEETS



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First)

Privacy Act Information Redaction

Street

City

Phone

Organization

Do you wish to make a statement?

Yes No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (Fi

Privacy Act Information Redaction

Street

City

Phone

Organization

Do you wish to make a statement?

Yes OVER No



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) JAMES (Last) HARTNETT
Street 9 N. CLARKSON AVE
City MASSENA State NY Zip 13662
Phone (Work) 315-764-2239 (Home) 315-764-5630
(Fax) 315-764-2312 (E-mail) HARTNETT@SLIC.COM
Organization GM
Do you wish to make a statement? Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name Privacy Act Information Redaction
Street _____
City _____
Phone _____
Organization _____
Do you wish to make a statement? Yes _____ No 9



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Janette (Last) Anderson
Street 867 LAKESHORE RD
City BURLINGTON State ONT Zip L7R 4A6
Phone (Work) (905) 336-6277 (Home) _____
(Fax) (905) 336-6272 (E-mail) janette.anderson@ec.gc.ca
Organization ENV CANADA

Do you wish to make a statement?

Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) CRAIG (Last) ARQUETTE
Street RR#1 BOX 179
City HOGANSBURG State NY Zip 13655
Phone (Work) (518) 358-5937 (Home) _____
(Fax) (518) 358-6252 (E-mail) _____
Organization SRMT ENVIRONMENT DIVISION

Do you wish to make a statement?

Yes _____ No ✓



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Tom (Last) Donovan
Street 37 Sherwood DR.
City Massena State NY Zip 13662
Phone (Work) 315-764-2273 (Home) 315-764-9644
(Fax) 315-764-2417 (E-mail) tdon@SLIC.com
Organization GM Powertrain
Do you wish to make a statement? Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) RICHARD (Last) ESTERLINE
Street P.O. Box 500
City MASSENA State NY Zip 13662
Phone (Work) (315) 764-1956 (Home) _____
(Fax) (315) 764-8384 (E-mail) _____
Organization REYNOLDS METAL CO
Do you wish to make a statement? Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

[ARC-WET]

Name (First) DAVID (Last) ARQUETTE

Street RR1, BOX 179

City HOGANSBURG State N.Y. Zip 13655

Phone (Work) 518-358-5937 (Home) 518-358-4655

(Fax) 518-358-6252 (E-mail) _____

Organization ATFE

Do you wish to make a statement? Yes X No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name **Privacy Act Information Redaction**

Street _____

City _____

Phone _____

(Fax) _____ (E-mail) _____

Organization _____

Do you wish to make a statement? Yes _____ No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (Privacy Act Information Redaction)

Street_

City_

Phone

Organization_

Do you wish to make a statement?

Yes _____ No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (Privacy Act Information Redaction)

Street_

City_

Phone

Organization_

Do you wish to make a statement?

Yes _____ No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Katsi (Last) Cook
Street First Environment Communications Box 135 F Beaver Meadow Rd.
City Bamberg State NY Zip 12914
Phone (Work) 518 358 4205 (Home) same
(Fax) same (E-mail) _____
Organization SUNY RF at Albany, Cornell University
Do you wish to make a statement? Yes ☒ No ☐



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Ray (Last) Cook
Street Rt 37
City Albany State _____ Zip _____
Phone (Work) 518-358-3241 (Home) 358-4185
(Fax) 2049 (E-mail) _____
Organization W.A.T.S.C.
Do you wish to make a statement? Yes ☒ No ☐



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Privacy Act Information Redaction

Name

Street

City

Phone

(Fax)

(E-mail)

Organization

Do you wish to make a statement?

Yes

No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First)

JOSEPH

(Last)

DETOL

Street

~~406~~ 6728 Towpath Road

City

Syracuse

State

NY

Zip

1324

Phone

(Work)

315 444-9120

(Home)

315 457-8190

(Fax)

(E-mail)

Organization

Blasland, Buck & Lee

Do you wish to make a statement?

Yes

No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Brian (Last) Kelly
Street 227 Main St. (P.O. Box 607)
City Massena State N.Y. Zip 13662
Phone (Work) 769-6621 (Home) _____
(Fax) 769-0810 (E-mail) _____
Organization Watkins Daily Times
Do you wish to make a statement? Yes _____ No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Shawn (Last) MARTIN
Street RR1 Box 8A
City HOGANSBURG State NY Zip 13655
Phone (Work) (518) 358-5937 (Home) _____
(Fax) 358-6252 (E-mail) _____
Organization St. Regis Mohawk Tribe - Environment
Do you wish to make a statement? Yes ☒ No _____

for
Presentation



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Nabi (Last) McClan
Street POB 638
City Potsdam State NY Zip 13626
Phone (Work) 315/265-6375 (Home) _____
(Fax) _____ (E-mail) _____
Organization NYS Citizens Environmental Coalition
Do you wish to make a statement? Yes ☒ No ☐



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Tracie (Last) Monroe
Street _____
City _____ State _____ Zip _____
Phone (Work) 769-2453 (Home) _____
(Fax) _____ (E-mail) _____
Organization Courier-Observer
Do you wish to make a statement? Yes _____ No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Peter (Last) Oudertirk
Street 317 Washington St.
City Watertown State NY Zip 13601
Phone (Work) _____ (Home) _____
(Fax) _____ (E-mail) _____
Organization NYSDDEC
Do you wish to make a statement? Yes _____ No /



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Doug (Last) Premo
Street PO Box 460
City Massena State NY Zip 13662
Phone (Work) 315-764-2233 (Home) _____
(Fax) _____ (E-mail) _____
Organization GM
Do you wish to make a statement? Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) James (Last) Ransom
Street P.O. Box 202
City Roosevelt State NY Zip 13683
Phone (Work) 518-358-3381 (Home) 518-358-2157
(Fax) 518-358-3488 (E-mail) jransom@n2000.net
Organization Hudsonsawne Environmental Task Force - Director
Do you wish to make a statement? Yes ☒ No ☐



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) DON (Last) SCHIEMANN
Street 110 BALDWIN
City BIRMINGHAM State MI Zip 48009
Phone (Work) 313-556-2175 (Home) 248-642-9368
(Fax) 313-974-5467 (E-mail) _____
Organization GM
Do you wish to make a statement? Yes _____ No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Mike (Last) Schultz
Street c/o cdm Ten Cambridge Center
City Cambridge State MA Zip 02142
Phone (Work) 617 252-8000 (Home) 617 621-2505
(Fax) 617 621-2505 (E-mail) schultzm@cdm.com
Organization Camp Dresser + McKee
Do you wish to make a statement? Yes _____ No X



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Dimitri (Last) Shoen
Street c/o 1050 Y06 Road, P.O. Box 228
City Massena State NY Zip 13601
Phone (Work) (315) 764-0554 (Home) _____
(Fax) (315) 764-0118 (E-mail) djshoen@hotmail.com
Organization WYAG Road
Do you wish to make a statement? Yes [Signature] No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) HILDA E (Last) Stroko
Street RR1 Box 113 ST ROGERS RD
City HOGANSBURG State NY Zip 13651
Phone (Work) 518-355-2272 (Home) 518-358-9598
(Fax) " " 4519 (E-mail) _____
Organization SPMTribal Official
Do you wish to make a statement? Yes ☒ No ☐



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Donald (Last) Stephenson
Street 652 West Onondaga St.
City Syracuse State NY Zip 13204
Phone (Work) 315-475-1170 (Home) 315-472-4606
(Fax) 315-475-6913 (E-mail) asl@ige.org
Organization Atlantic States Legal Foundation
Do you wish to make a statement? Yes ☐ No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name **Privacy Act Information Redaction**

Street

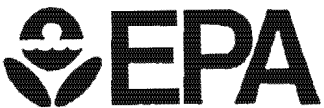
City

Phone

Organization

Do you wish to make a statement?

Yes _____ No



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name **Privacy Act Information Redaction**

Street

City

Phone

(Fax) _____ (E-mail) _____

Organization _____

Do you wish to make a statement?

Yes _____ No



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name: **Privacy Act Information Redaction**

Street

City

Phone

Organization

Do you wish to make a statement?

Yes _____ No ☒



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) Larry White (Last)

Street P.O. Box 861

City Roseville Town State NY Zip 13683

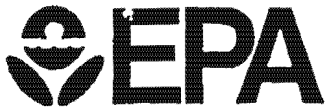
Phone (Work) 613-575-2379 (Home) 518-358-3371

(Fax) 613-575-2073 (E-mail)

Organization Mohawk Council of Akwesasne

Do you wish to make a statement?

Yes _____ No _____



United States Environmental Protection Agency Region II

General Motors Superfund Site – Public Meeting – September 17, 1998

Name (First) PRISCILLA (Last) WORSWICK

Street P.O. BOX 5

City ROOSEVELTOWN State NY Zip 13683

Phone (Work) (518) 358-9223 (Home) _____

(Fax) _____ (E-mail) _____

Organization FIRST ENVIRONMENT RESEARCH PROJECTS

Do you wish to make a statement?

Yes _____ No ✓

ATTACHMENT D
WRITTEN COMMENTS

**SUBJECT: E.P.A. POST DECISION
FOR THE GENERAL MOTORS
POWERTRAIN - MASSENA
PLANT SITE**

**JAMES M .TOTH
11 BALDWIN ST.
MASSENA, N.Y.
13662**

**TO: ANNE KELLY, REMEDIAL PROJECT MANAGER
U.S. ENVIRONMENTAL PROTECTION AGENCY
290 BROADWAY, 20 TH FLOOR
NEW YORK, NEW YORK 10007-1866**

SEPTEMBER 3, 1998

AS A CONCERNED RESIDENT OF ST. LAWRENCE COUNTY, AND A GENERAL MOTORS EMPLOYEE, THE E.P.A. POST DECISION PROPOSED PLAN OF AUGUST, 1998, HAS SURFACED SOME ISSUES BASED UPON MY KNOWLEDGE LEVEL. THE LACK OF CLEAN-UP ACTIVITY AT THIS SITE HAS GONE TOO LONG. IT IS TIME TO DO WHAT IS RIGHT PER E.P.A. GUIDELINES AND FINALIZE THE CLEAN-UP AT THIS SITE.

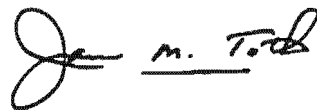
SOME OF THE ISSUES OF CONCERN WITH THE PROPOSED PLAN INCLUDE:

1.) THE OFF-SITE DISPOSAL STANDARD IS SET AT 10 PPM RATHER THAN 50 PPM USED AT OTHER RESTRICTED ACCESS INDUSTRIAL SITES.

2.) THE PLAN DOES NOT ADDRESS OTHER SITE AREAS INCLUDING THE INDUSTRIAL LAGOONS, THE COVE AND THE ST. REGIS RESERVATION, AND THE NORTH DISPOSAL AREA.

IN 1995 THE E.P.A. ACKNOWLEDGED THAT CONTAINMENT OF PCB'S BELOW 500 PPM WAS PROTECTIVE OF HUMAN HEALTH AND IN COMPLIANCE WITH E.P.A. POLICIES. POLITICAL INFLUENCES SHOULD NOT GENERATE DUAL STANDARDS!!

YOUR COOPERATION AND SUPPORT ON THESE IMPORTANT ISSUES IS GREATLY APPRECIATED.



JAMES M. TOTH

860 Maple Ridge Road
Richville NY 13681
Sept. 21, 1998

Anne Kelly, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York NY 10007-1866

Dear Ms. Kelly,

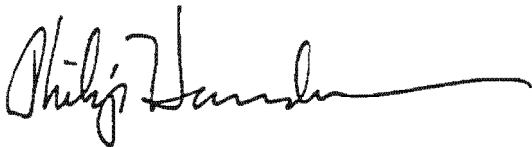
As a resident of northern New York, I am writing to register my support for the August 1998 proposal for remediation of the first Operable Unit of the General Motors Superfund Site in Massena, New York.

I also want to commend the EPA for reinstating treatment levels of 10 ppm and for proposing off-site shipment of contaminated materials rather than on-site "containment."

I do, however, wish to remind the EPA of the need for permanent remediation of other areas of the GM site, namely the East Disposal Area and the Industrial Dump. Neither are part of this proposal.

Thank you for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Philip Harnden", with a long, sweeping horizontal line extending to the right.

Philip Harnden

October 1, 1998

Anne Kelly, Remedial Project Manager
U. S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

RE: Public Comments on GM, Massena CERCLA Site

Dear Ms. Kelly

As a resident of St. Lawrence County, NY, I agree with your proposed plan to allow disposal of PCB containing soils and sediments to be removed off-site for disposal. I believe however, that the limit for required off site disposal should be set at 50 ppm. This would be in line with the State requirements for designation as a Hazardous Waste and EPA TSCA designation as a Hazardous Substance. It will also be in agreement with disposal activities at the two other local plant remediation areas. Requiring disposal instead of proper containment will result in extra spending which I do not believe is cost effective for the protection of Human Health or the Environment. Off site truck or rail transportation for the large quantities of soils between 10 and 50 ppm is also not a favorable safety compromise.

I would also ask that you move forward on approval of plans for the cleanup of the other areas on the GM site. Areas off site of the GM property (cove and Reservation lands) should be cleaned up as soon as practicable, and to a prudent level for reasonable removal activities and methods. The groundwater containment activities should also proceed at a rapid pace in order to eliminate the potential for any migration off the GM property onto neighboring lands or rivers.

The high concentration soils in the North Deposit area should also be addressed in a timely manner. PCB levels would seem to warrant off site treatment or landfill in a very secure facility which would not have neighboring health considerations, such as a remote landfill area.

The low concentrations of the East Deposit area should be dealt with in a manner best befitting the practical and technical considerations involving the disturbance of this quantity of low concentration soils. I do not believe that off site disposal or on site treatment is a good safety compromise for this material.

Along the same lines, disturbance of any existing deposits within the capped landfill does not seem to warrant the high costs for the low quantity, low concentration areas of actual contamination. This assumes however that a technically adequate ground water containment and treatment system is put in place at the site.

Thank you for your consideration on this matter. I encourage you to move forward on this project and to address the true technical and health considerations for the different areas on the overall site.

Sincerely,



Barry Dittlein
1047 Maple Ridge Road
Brasher Falls, NY 13613

October 2, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

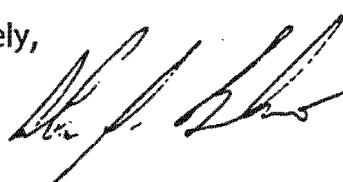
Subject: GM Site

Dear EPA:

Please do not use emotions and politics to make your decision. Use of actual information, science and EPA risk assessments to establish appropriate levels to ship off-site.

I do support your decision to ship offsite instead of onsite treatment.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Boulaiz". The signature is stylized with a large, sweeping initial "A" and a long, horizontal stroke extending to the right.

ANDREW Boulaiz
203 Jefferson Ave.
Massena, NY 13662

October 2, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

I support EPA's plan for the GM site to ship material offsite rather than treat on site.

However, the ship level of 10 ppm is excessive and not supported by risk based cleanup levels.

Sincerely,

Richard Reynolds
25 Riverdale
Massena N.Y. 13662

October 2, 1998

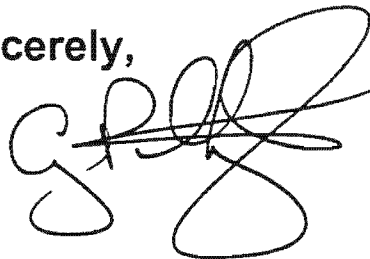
Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

Secure containment areas on the GM site such as the landfill or east area should be used to contain material between 1 and 500 ppm PCBs. Other material should be shipped off-site for disposal.

Sincerely,

A handwritten signature in black ink, appearing to be "G. S. [unclear]", written over a horizontal line.

October 2, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

I am concerned that the St. Regis Mohawk Tribe does not have accurate information on risk from the GM Site. EPA should clean up the cove, the reservation areas and contain all material securely in the GM site. This would reduce the risk to very low levels-what we want.

Sincerely,



P.O. Box 957
Roosevelt town NY
13603



Environment
Canada

Environnement
Canada

Ontario Region
4905 Dufferin Street
Downsview, Ontario
M3H 5T4

Région de l'Ontario
4905, rue Dufferin
Downsview, Ontario
M3H 5T4

October 5, 1998

Via Fax (212) 637-3966

Ms. Jeanne Fox
Regional Administrator
U.S. Environmental Protection Agency
290 Broadway
New York, NY 10007-1866

**Re: Superfund Post-Decision Proposed Plan - General Motors Superfund Site,
Massena, New York.**

Dear Ms. Fox,

In response to the public comment period on the Post-Decision Proposed Plan for the General Motors Superfund Site, I am pleased to have the opportunity to submit our comments. As in the past, these comments are submitted based on the combined input of the Ontario and Quebec Regions of Environment Canada, the Quebec Ministry of Environment and Wildlife and the Ontario Ministry of Environment.

Canadian concerns regarding the clean up efforts at GM have been expressed previously in the Canadian Review Panel comments submitted to the EPA regarding the 1995 Post-Decision Proposed Plan and in correspondence to Ms. Carol Browner, Administrator, EPA from our former Minister Sheila Copps in July of 1995.

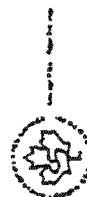
We support your decision to maintain the 1990 Record of Decision level of 10 ppm PCBs and the proposed plan to eliminate the potential for this material to enter the St. Lawrence River environment. Although a permanent solution of destroying the PCBs would be preferable, the transport to and disposal of PCB contaminated material in a hazardous waste facility represents a significant reduction in the risk of contamination to this area.

I would like to confirm our continuing interest in being involved in activities at the GM site, and re-iterate that a technical briefing regarding developments at this site would benefit Canadian agencies and allow an opportunity to have a discussion about items not included in this proposed plan. Specific items we would appreciate being covered in this briefing include: completion of the 1995 dredging project, monitoring and maintenance of the cap in the St. Lawrence River, additional sampling at the Industrial Landfill, activities in other areas of the site (eg. East Disposal area) and design of the groundwater containment system.

Yours sincerely,

John Mills
Regional Director General
Ontario Region

Canada





AKWESASNE TASK FORCE ON THE ENVIRONMENT

P.O. Box 992, Hogansburg, NY 13655

October 5, 1998

Ann Kelly
Remedial Project Manager
USEPA, Region II
290 Broadway, 20th Floor
New York, NY 10007-1866

**RE: ATFE COMMENTS ON EPA PROPOSED PLAN, GM SUPERFUND SITE,
MASSENA, NY, AUGUST 1998**

Dear Ms. Kelly:

The Akwesasne Task Force on the Environment has reviewed the EPA's Proposed Plan for the General Motors (GM) Superfund site and submit the following comments.

ATFE would like to express our appreciation to EPA for withdrawing the 1995 EPA Proposed Plan. It seems we are starting to head down the right path in cleaning up the hazardous waste at GM.

The Mission of ATFE is to conserve, preserve, protect and restore the environment, natural and cultural resources within the Mohawk Territory of Akwesasne in order to promote the health and survival of the sacred web of life for the next seven generations and to full fill our responsibilities to the natural world as our creator has instructed.

The Mohawk Nation at Akwesasne has been forced to bear a disproportionate share of the negative environmental impacts that have resulted from the operation of neighboring industries. Because of environmental pollution, the traditional economies of the Mohawk people have been all but destroyed.

ATFE's position is that there should be no more landfilling of PCBs in order to protect our environment and the health of the future generations. We actively advocate permanent treatment of these materials. We have reviewed scientific literature on the toxicology of PCBs which support our position. PCBs are hormone disruptors, which cause adverse effects on reproduction, learning behavior and immune system function. We have worked to educate the community on impacts from the pollutants in our environment to our health. We just performed a study that

showed some chronic disease patterns increasing among the Mohawks of Akwesasne such as asthma, diabetes, hypothyroidism, and osteoarthritis. The current literature indicates we should be enforcing stricter EPA standards for implementing permanent clean up plans, not relaxing them.

St. Lawrence River Sediments

ATFE agrees with EPA's Proposed Plan to ship all of the contaminated sediments dredged from the St. Lawrence River off site to a secure landfill. We would prefer this material be permanently treated, but the consequences of leaving it on site for another two years before a treatment system is on line and operational creates greater risk of recontaminating the river, and contaminating additional soils and wildlife in the surrounding area.

Further Characterization in the Racquette River

ATFE recommends further characterization of the contaminated sediments from GM's Outfall 002 to the mouth of the Racquette River. This stretch of the river is traditional hunting and fishing grounds and is part of the Mohawk Territory of Akwesasne.

There has been limited data collected in this area to show that this stretch of the Racquette River is clean. Data that is available to us indicates that there is PCB contamination of fish and wildlife in this area due to GM's discharge of PCBs through Outfall 002. (See Fish Study, April 1990, Jock and Sloan; and Wildlife Study, October 1992, by Lawrence C. Skinner).

The historical data and the dynamics and hydrology of the river shows that there is PCB contamination further downstream of GM Outfall 002 that is above the Tribal ARAR of 0.1 ppm in Mohawk Territory. Sediment data collected by Ward Stone in 1998 shows PCB levels in sediments above 0.1 ppm. In 1985, Environment Canada showed PCB contamination at 2.8 ppm in sediments at the mouth of the Raquette River.

In October 1994, ERM did a sediment delineation adjacent to GM Outfall 002. They found very limited sediments with high levels of PCBs in this area. The only sediments they could find were behind rocks and boulders. This indicates that any contaminated sediments in this area got resuspended to Mohawk waters.

This is within Mohawk jurisdiction, and we have the sovereign right to protect our water quality and watersheds. This was reinforced by President Clinton and Carol Browner in October 1992. The SRMT Council and SRMT agencies have the right to enforce the Tribe's ambient PCB standard within the exterior boundaries of the Akwesasne Mohawk Territory. Exceedences of the Tribe's PCB standard would constitute risk to the health and welfare of the Mohawk population. These standards shall dictate the clean up of any PCBs found in Mohawk Territory.

The ATFE shall do everything within their power to maintain, enhance, and restore the quality of

our environment. Therefore, PCB standards promulgated by SRMT constitute standards that EPA must recognize as ARARs for the purpose of CERCLA remediation at the GM Superfund site.

In light of the Mohawks property right and EPA's fiduciary obligation to protect such rights and entitlements, the Tribal ARAR for sediments of 0.1 ppm applies to the Raquette River in Mohawk Territory. EPA should not relieve GM of their obligation to clean up contaminated sediments directly impacting our natural resources.

Disposal of Materials below 10 ppm of PCBs

Before we allow GM to dispose of contaminated materials below 10 ppm, to be excavated from the Racquette River soils and sediments and the excavated cut-off wall soils, EPA should make GM clean up the mess that is in there first, before allowing more hazardous waste to be disposed of in the EDA.

In 1992, GM did some plant renovations around their building for the iron foam process. They collected soil samples around areas to be excavated. All the samples came back above 10 ppm.

In 1995, GM excavated the Miscellaneous Site Soils on the south side of the plant. All the soils were contaminated with PCBs above 10 ppm and disposed in the EDA temporarily. Now it remains permanent. Why? EPA needs to justify to the Mohawks of Akwesasne their decision to leave the materials in place.

According to the OUI ROD, the above soils mentioned should be permanently treated. EPA's proposed plan to amend the OUI ROD to ship anything above 10 ppm to a secure landfill. We expect EPA to include the Miscellaneous Site Soils and Plant Renovation Soils in their decision, and ship off-site to a secure landfill.

In the Preliminary Design Report for the Industrial Landfill and East Disposal Area Containment System, prepared by CDM, June 1994, GM plans to remove only 30% of the volume of contaminated material above 500 ppm of PCBs (see pg. 2-15, table 2-3).

If the principal threat of material is to remain in place, and soils above 10 ppm are allowed to remain permanent in the EDA, then ATFE cannot support putting contaminated soils between 1 to 10 ppm to be excavated from the Racquette River banks and sediments and cut off wall soils in the EDA. As the volume of PCB material to remain on site increases, the total mass of PCB material increases, and the potential for a release into the environment increases.

In EPA's Proposed Plan, there is no information about the storage of the contaminated material below 10 ppm. EPA needs to be more specific about how it will be stored, what ARAR's are being waived, and what safeguards will be included to prevent it from migrating and impacting the environment over the long term storage of this waste. What does the cap consist of? What is the

present hydrogeological conditions where this material will be stored?

Consistency of Clean Up Standards Applied to Site Overall

The EPA Proposed Plan addresses three areas of concern for the OUI ROD. ATFE is concerned about the rest of the clean up plans for the OUI ROD which includes the North Disposal Area, lagoons, Mohawk soils and sediments. Is EPA recommending another proposed ROD amendment or does the OUI ROD remedy still apply to these areas?

ATFE recommends more permanent treatment technology be applied for the rest of the OUI ROD contaminated materials. Therefore, the original OUI ROD remedy should remain for the rest of this site.

The inconsistency of clean up standards applied at this site in the past, leads us to believe that clean up standards will be relaxed in future decisions. If the clean up level and treatment level of 10 ppm applies to the St. Lawrence River, Racquette River soils and sediments, and cut off wall soils, the same should apply to the miscellaneous site soils and plant renovation soils, and this should extend to the remedy for the EDA in the OUI ROD.

EPA has the authority to order GM to do more under the 106 order to implement the OUI ROD, under section XII Additional Response Actions. EPA has reserved the discretion to order GM to revisit any decision made that impacts human health and the environment.

Conclusion

In conclusion, GM will save \$3.8 million from EPA's Proposed Plan to ship off site to a secure landfill, instead of treating materials above 10 ppm for the St. Lawrence River Sediments, Racquette River soils and sediments, and cut off wall soils. GM should invest the savings in performing more permanent clean up for the remaining areas that are not addressed in EPA's Proposed Plan.

Thank you for allowing us to comment on EPA's Proposed Plan for the GM site. We will be looking forward to EPA's response to our comments.

Sincerely,



Dawn David, V.P.
ATFE, Inc.

APPENDIX

to ATFE Letter 10-5-98

FISH/WILDLIFE DATA IN RAQUETTE RIVER

DATE	LOCATION/Species	WET WT. (ppm)	Lipid WT. (ppm)
7/30/87	Mouth of Racquette-mallard		12.9
7/30/87	Mouth of Racquette-Mallard		773.5
7/30/87	Below Twin bridges-Snapping Turtle		29.5
7/30/87	Below twin Bridges-Wood Duck		3.5
7/30/87	Below Twin Bridges-Red Wing Blackbird		36.3
7/30/87	Near GM outfall-Red Wing Blackbird		36.3
7/30/87	Mouth of Racquette-Sturgeon	3.71	
8/1/88	Mouth of Racquette-Double -crested Cormorant	4.3	107.42
9/16/88	Bridge near 002 outfall(GM) - Leopard frog	0.22	26.62
6/26/90	Before RR Bridge-Bullfrog	0.12	45.02
6/26/90	Before RR Bridge-bullfrog	0.61	30.90
7/3/90	After RR Bridge-Snapping Turtle eggs	19.82	

Spottail Shiner Studies:

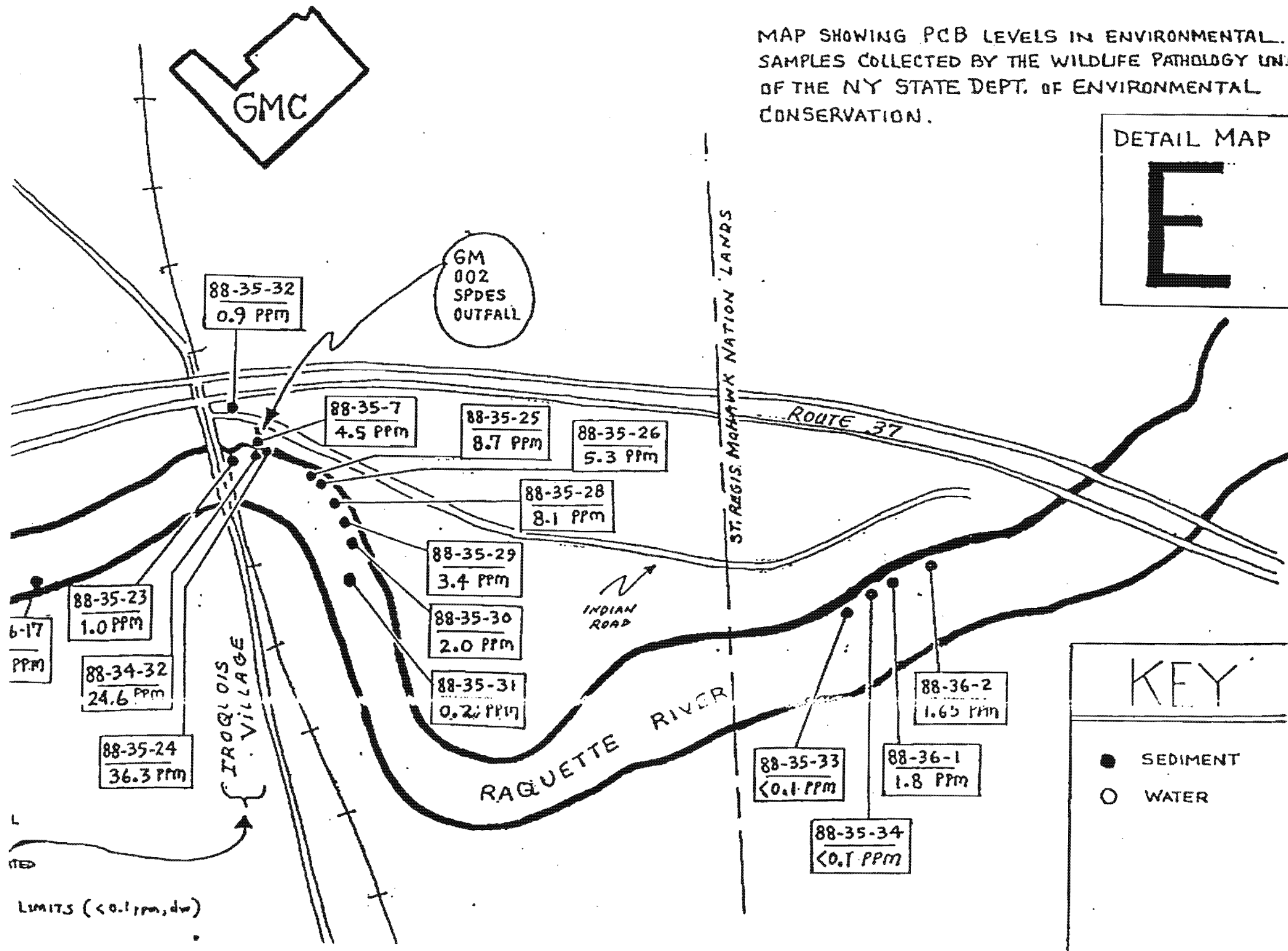
1997-SRMT	Below 002 outfall	Sediment Shiner	1.8 ppm 2.6 ppm
1985 - Env. Canada		shiners	0.5 ppm
1987 - NYSDEC		shiners	2.34 ppm
* Recent Twin Bridge sampling- NYSDOT	Pier 1 South Bridge	sediment	.147 ppm

- There is historical data on fish, wildlife, and sediment in the Racquette River for PCB contamination.
- Additional sampling is needed from the 002 outfall to the Mouth of the Racquette River.
- a. to develop fish advisories for this River because there are none to date.
- b. To clean sediments to Tribal ARAR's:
 - .1 ppm sediment PCB
 - 1 ppm soil
 - 1 ppt surface water

MAP SHOWING PCB LEVELS IN ENVIRONMENTAL
SAMPLES COLLECTED BY THE WILDLIFE PATHOLOGY UNIT
OF THE NY STATE DEPT. OF ENVIRONMENTAL
CONSERVATION.

DETAIL MAP

E



KEY

- SEDIMENT
- WATER

Source: Anderson, 1989

Table 7. (Continued).

Part IV-B									
LOCATION	SPECIES	AVERAGE "AROCOR 1221" (ppm)	"AROCOR 1221" RANGE (ppm)	AVERAGE "AROCOR 1016" (ppm)	"AROCOR 1016" RANGE (ppm)	AVERAGE "AROCOR 1254" (ppm)	"AROCOR 1254" RANGE (ppm)	AVERAGE PCB (lipid-ppm)	PCB RANGE (lipid-ppm)
Raquette River -near Rt. 37 Bridge	Brown bullhead	<0.05	-	0.32	-	0.23	-	65.3	-
	Carp	<0.05	<0.05-<0.05	8.19	0.81-17.6	20.75	6.60-32.90	128.2	30.0- 197.0
	Channel catfish	<0.05	-	0.33	-	6.48	-	94.2	-
	Golden redhorse	<0.05	<0.05-<0.05	0.14	<0.05- 0.28	0.22	<0.05- 0.34	23.9	14.0- 43.0
	Northern pike	<0.05	<0.05-<0.05	0.07	<0.05- 0.10	0.25	0.05- 0.53	271.1	94.5- 363.8
	Pumpkinseed	<0.05	<0.05-<0.05	0.06	0.06- 0.06	0.05	<0.05- 0.08	36.3	28.6- 44.0
	Smallmouth bass	<0.05	<0.05-<0.05	0.09	0.07- 0.10	0.33	0.17- 0.53	69.5	31.9- 96.5
	White perch	0.10	<0.05-0.18	0.41	0.30- 0.52	2.45	1.70- 3.20	31.2	31.2- 31.2
Grass River -at mouth	Yellow perch	<0.05	<0.05-<0.05	0.09	<0.05- 0.18	0.16	0.06- 0.32	52.0	33.9- 79.3
	Brown bullhead	<0.05	<0.05-<0.05	0.64	0.30- 0.90	1.74	1.09- 2.80	208.6	79.8- 389.7
	Channel catfish	<0.05	<0.05-<0.05	0.85	0.17- 2.03	13.79	1.20-44.79	336.9	9.0-1338.4
	Northern pike	<0.05	<0.05-<0.05	0.58	<0.05- 1.50	0.82	<0.05- 2.00	485.0	150.6- 773.1
	Smallmouth bass	<0.05	<0.05-<0.05	0.20	<0.05- 0.40	0.79	0.21- 1.41	385.5	41.9- 784.8
	Walleye	<0.05	<0.05-<0.05	1.24	<0.05- 4.33	1.69	0.17- 4.78	57.2	31.9- 105.9
St. Lawrence River -vicinity Snye Marsh	Yellow perch	<0.05	<0.05-<0.05	0.20	<0.05- 0.90	0.29	<0.05- 1.19	110.6	11.2- 459.8
	Brown bullhead	<0.05	<0.05-<0.05	0.05	<0.05- 0.12	0.28	0.09- 0.65	48.9	17.8- 90.9
	Carp	<0.05	<0.05-<0.05	1.59	0.10- 6.40	8.39	3.94-13.40	90.1	20.2- 198.2
	Largemouth bass	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	0.06	<0.05- 0.08	143.2	71.2- 208.3
	Northern pike	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	<0.05	<0.05- 0.10	370.6	78.9-1500.0
	Smallmouth bass	<0.05	<0.05-<0.05	0.12	0.07- 0.20	0.65	0.36- 1.10	57.0	48.8- 69.5
	Walleye	<0.05	<0.05-<0.05	0.12	<0.05- 0.23	0.73	0.10- 1.40	43.0	33.0- 53.6
St. Lawrence River -upstream of Eisenhower Lock	Yellow perch	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	<0.05	<0.05- 0.08	25.5	15.3- 39.5
	Carp	<0.05	<0.05-<0.05	0.08	<0.05- 0.18	4.64	0.25- 0.59	51.3	23.7- 96.0
	Muskellunge	<0.05	<0.05-<0.05	0.29	-	1.61	-	91.7	-
	Northern pike	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	0.18	0.15- 0.22	377.5	80.0- 675.0
	Pumpkinseed	<0.05	<0.05-<0.05	<0.05	<0.05- 0.08	0.15	0.08- 0.23	50.3	14.5- 89.3
	Smallmouth bass	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	0.15	0.08- 0.21	108.9	72.4- 162.5
	White sucker	<0.05	<0.05-<0.05	<0.05	<0.05-<0.05	<0.05	<0.05- 0.07	43.5	16.0- 187.5
	Yellow perch	<0.05	-	1.03	-	0.22	-	146.6	-

Table 7. (Continued).

Part III-A

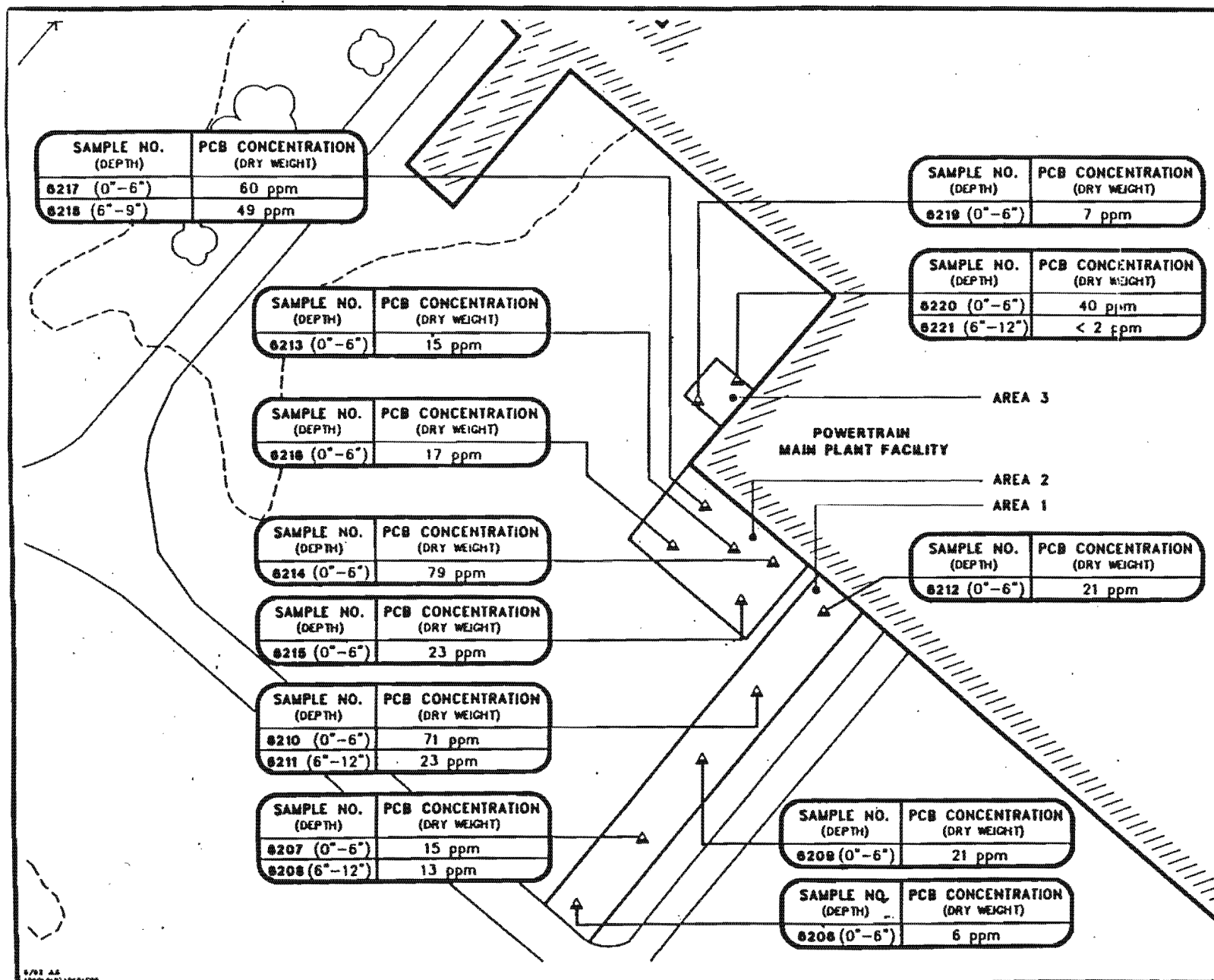
LOCATION	SPECIES	NO. OF FISH ANALYZED	NO. OF ANALYSES	AVERAGE LENGTH (mm)	LENGTH RANGE (mm)	AVERAGE WEIGHT (g)	WEIGHT RANGE (g)	AVERAGE LIPID (%)	LIPID RANGE (%)	AVERAGE TOTAL PCB (ppm)	TOTAL PCB RANGE (ppm)
St. Regis River -above Hogsburg Dam	Brown bullhead ^a	1	1	245	-	190	-	<0.01	-	<0.15	-
	Carp	1	1	710	-	7198	-	16.30	-	2.90	-
	Fallfish	2	2	229	215-243	122	113- 132	1.36	0.22- 2.50	<0.15	<0.15- <0.15
	Pumpkinseed	2	2	211	200-222	260	209- 311	0.98	0.41- 1.56	<0.15	<0.15- 0.18
	Rock bass	3	3	156	150-168	82	70- 104	0.08	0.05- 0.11	<0.15	<0.15- <0.15
	Smallmouth bass ^a	6	6	340	304-361	589	396- 713	0.23	0.03- 0.41	0.15	<0.15- 0.26
	Walleye	4	4	492	455-568	1174	720-2018	0.22	0.11- 0.42	<0.15	<0.15- <0.15
	Yellow perch	5	5	213	203-232	136	110- 185	0.60	0.40- 0.76	0.21	<0.15- 0.44
Raquette River -at mouth	American eel	1	1	797	-	1151	-	25.40	-	1.82	-
	Brown bullhead	2	2	316	287-344	498	375- 622	1.24	0.79- 1.70	0.51	0.52- 0.54
	Bluegill	2	2	200	190-210	230	217- 242	0.78	0.16- 1.40	0.21	0.14- 0.28
	Carp	1	1	635	-	4015	-	9.49	-	2.18	-
	Channel catfish	5	5	560	460-698	2052	910-4079	9.22	1.70-21.40	3.27	1.76- 6.70
	Golden redhorse	3	3	414	405-427	889	835- 923	5.14	0.82-11.10	0.63	0.16- 1.46
	Grass pickerel	1	1	619	-	1540	-	0.10	-	0.12	-
	Lake sturgeon	2	2	790	620-959	4121	1016-7226	16.30	6.20-26.40	2.62	1.04- 4.20
	Muskellunge	1	1	932	-	7941	-	1.20	-	1.08	-
	Northern pike	5	5	598	519-655	1477	845-1787	0.33	0.09- 0.75	0.27	<0.15- 0.47
	Pumpkinseed	1	1	194	-	214	-	0.64	-	0.19	-
	Smallmouth bass	5	5	323	313-349	584	506- 777	0.97	0.38- 1.50	0.60	0.30- 0.92
	White bass	2	2	300	292-307	468	434- 503	5.05	2.90- 7.20	2.06	1.76- 2.36
	Walleye	3	3	478	469-492	983	959-1012	1.70	1.20- 2.10	0.57	0.24- 0.76
	Yellow perch	2	2	221	212-230	140	122- 158	0.84	0.75- 0.94	0.23	0.18- 0.27

Table 7. (Continued).

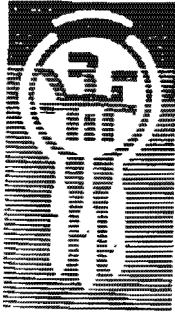
Part IV-A

LOCATION	SPECIES	NO. OF FISH ANALYZED	NO. OF ANALYSES	AVERAGE LENGTH (mm)	LENGTH RANGE (mm)	AVERAGE WEIGHT (g)	WEIGHT RANGE (g)	AVERAGE LIPID (%)	LIPID RANGE (%)	AVERAGE TOTAL PCB (ppm)	TOTAL PCB RANGE (ppm)
Raquette River -near Rt. 37 Bridge	Brown bullhead	1	1	134	-	711	-	0.88	-	0.58	-
	Carp	4	4	768	700- 800	7706	1795-10604	23.30	19.20-25.50	28.97	7.44-40.92
	Channel catfish	1	1	670	-	3365	-	7.26	-	6.84	-
	Golden redhorse	3	3	413	390- 430	920	876- 971	1.70	0.51- 3.10	0.38	<0.15- 0.64
	Northern pike	3	3	674	580- 761	2003	1201- 2455	0.12	0.08- 0.18	0.34	0.10- 0.64
	Pumpkinseed	2	2	200	200- 200	217	208- 226	0.42	0.25- 0.58	0.14	0.11- 0.17
	Smallmouth bass	5	5	313	272- 335	512	295- 590	0.70	0.41- 1.10	0.44	0.27- 0.64
	White perch	2	2	278	265- 290	425	325- 525	9.50	6.50-12.50	2.96	2.02- 3.90
	Yellow perch	5	5	200	175- 270	126	82- 277	0.58	0.28- 1.18	0.28	0.11- 0.42
Grass River -at mouth	Brown bullhead	4	4	250	220- 270	206	141- 245	1.35	0.92- 2.20	2.40	1.42- 3.58
	Channel catfish	5	5	525	370- 725	1875	1025- 3818	9.92	3.50-17.70	14.67	1.58-46.84
	Northern pike ^a	5	5	763	690- 855	2922	2028- 4427	0.36	0.03- 0.80	1.42	<0.15- 3.52
	Smallmouth bass	5	5	327	310- 346	542	477- 600	0.54	0.09- 1.40	1.01	0.26- 1.80
	Walleye	5	5	488	435- 535	1168	830- 1556	5.81	0.48-20.60	2.95	0.22- 9.14
	Yellow perch	5	5	247	220- 290	211	154- 313	0.62	0.19- 1.20	0.52	<0.15- 2.12
St. Lawrence River -vicinity Snye Marsh	Brown bullhead	5	5	320	270- 339	471	293- 568	0.73	0.51- 0.93	0.36	0.16- 0.70
	Carp	5	5	683	650- 735	5778	4242- 8409	13.08	7.80-24.00	10.01	4.06-19.82
	Largemouth bass	3	3	403	349- 434	1138	719- 1374	0.09	0.05- 0.17	<0.15	<0.15-<0.15
	Northern pike ^a	5	5	719	664- 870	2309	1650- 3794	0.09	<0.01- 0.19	<0.15	<0.15-<0.15
	Smallmouth bass	4	4	340	305- 387	669	511- 1018	1.46	0.66- 2.60	0.80	0.46- 1.32
	Walleye	3	3	557	490- 600	1866	1118- 2332	2.23	0.28- 3.90	0.88	0.15- 1.65
	Yellow perch	5	5	257	235- 273	240	172- 273	0.43	0.19- 0.83	<0.15	<0.15- 0.47
St. Lawrence River -upstream of Eisenhower Lock	Carp	3	3	657	527- 814	5480	2360- 9836	9.49	0.88-17.40	4.74	0.30- 9.80
	Muskellunge	1	1	952	-	6361	-	2.10	-	1.92	-
	Northern pike ^a	2	2	780	550-1010	4000	1162- 6838	0.14	0.04- 0.25	0.24	0.20- 0.27
	Pumpkinseed	5	5	194	165- 209	206	115- 252	0.60	0.26- 1.10	0.22	0.16- 0.34
	Smallmouth bass	5	5	367	340- 397	715	496- 901	0.21	0.08- 0.29	0.21	0.13- 0.31
	White sucker ^a	5	5	379	329- 425	667	537- 853	0.29	0.04- 0.47	<0.15	<0.15-<0.15
	Yellow perch	1	1	262	-	234	-	0.87	-	1.28	-

FIGURE 1



HEBI/ BLES
RUCHES ENVIRONMENTAL SYSTEMS, INC./
MASSACHUSETTS & LIFE ENVIRONMENTAL SERVICES



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**RE: SRMT COMMENTS ON EPA 1998 POST-DECISION PROPOSED PLAN
GM SUPERFUND SITE, MASSENA NEW YORK.**

INTRODUCTION

The St. Regis Mohawk Tribe ("SRMT") has reviewed the Environmental Protection Agency's ("EPA") 1998 Post-Decision Proposed Plan (the "1998 Plan") for the General Motors Superfund Site at Massena, New York (the "Site"), and submits the following comments.

The purpose of the 1998 Plan is to amend that portion of the December, 1990 Operable Unit One Record of Decision (the "OUI ROD"), which provided for the on-site treatment of all sediments with contamination levels above 10 ppm PCBs which were dredged from the St. Lawrence and Raquette Rivers, as well as all soils excavated from the associated riverbanks and wetlands. In addition, soils excavated during the installation of the Groundwater cut-off wall were also to be treated on-site to 10ppm.

By the current proposal, EPA has indicated its intention to abandon the January, 1995 Post-Decision Proposed Plan, and to amend the 1990 OUI ROD to the extent of shipping all dredged or excavated sediments or soils contaminated at levels over 10 ppm off-site, to a secure, hazardous waste landfill.

As trustee of the natural resources in and adjacent to Akwesasne, the SRMT is opposed to the landfilling of PCBs as a permanent remedy. Such decisions merely shift to our future generations the burden of addressing the contamination. The SRMT has reviewed the scientific literature on the toxicology of PCBs, and has concluded that the research which has identified PCBs as

hormone disrupters, as substances which cause adverse reproductive effects, and as substances which cause learning disabilities and immunodeficiency supports its position in this regard. These studies should also support a tightening of EPA standards for implementing permanent clean-up plans, and a move away from relaxed standards.

TRIBAL ARARS SHOULD EXTEND TO THE GM SITE

During the course of its decision-making at the GM Site, EPA is required, both by common-law principles of trust and responsibility, as well as by various Presidential directives, to fashion a remedy that is responsive to the unique needs of the residents of Akwesasne. GM's disposal practices have impaired the rights of a sovereign nation. Worcester v. Georgia, 31 U.S. (6 Pet.) 515 (1832). Tribal sovereign powers include rights to air, land, water and other natural resources over which the Tribe has jurisdiction and control. Merrion v. Jicarilla Apache Tribe, 102 S.Ct. 894, 901-906 (1982). A tribe's sovereign power to protect and regulate natural resources extends over both its members and activities impacting Tribal resources within its territory. Worcester v. Georgia, supra.

The United States Supreme Court has specifically recognized the interest of sovereign governments in protecting the air, land and water from polluting sources - even when those pollution sources are located beyond the sovereign's territory. Georgia v. Tennessee Copper, 206 U.S. 230, 237 (1907), Illinois v. City of Milwaukee, 406 U.S. 91, 101-07 (1972). In Georgia v. Tennessee Copper, the Court noted that a State could be protected from an out-of-state pollution source, holding that:

"it is a fair and reasonable demand on the part of a sovereign that the air over its territory should not be polluted on a great scale by sulphurous acid gas, that the forests on its mountains, be they better or worse, and whatever domestic destruction they have suffered, should not be further destroyed or threatened by the acts of persons beyond its control." Georgia, 206 U.S. at 238.

This concept was reaffirmed in 1987 by the Eighth Circuit Court of Appeals which recognized that:

"The Supreme Court of the United States has held that state and federal governments suffer injury to their "quasi-sovereign" interests when pollutants are released into the soil, water, and air within their jurisdiction." Continental Ins. v. N.E. Pharm. & Chem. Co., 811 F.2d 1180, 1185 (8th Cir. 1987).

Tribes, like States, possess such quasi-sovereign governmental powers. As such, an Indian Tribe may control on or off-reservation activities potentially affecting natural resources on lands it

owns, on lands that are held in trust by the federal government, as well as activities on or off resources protected by treaty rights.

The SRMT Council, as well as SRMT agencies shall do everything within their powers to maintain, enhance, and restore the quality of the Mohawk Territory environment. Therefore, PCB standards promulgated by SRMT constitute standards that EPA must recognize as ARARs for the purpose of CERCLA remediation at the GM Superfund Site.

As is detailed below, EPA has a responsibility to assure that inherent Tribal rights of sovereignty are fully protected, and to extend Tribal ARARs onto GM property to the extent reasonably necessary to protect Tribal resources.

BACKDROP TO EPA ACTION

As an entity of the United States Government, EPA has important trust obligations to the Tribe. United States v. Mitchell, 403 U.S. 206, 225 (1983); Blue Legs v. B.I.A., 867 F.2d 1094, 1100 (8th Cir. 1989). The Trust obligation requires that the EPA proceed at the site with the Tribes' interests in mind, and must select a remedy that is protective of Tribal lands, waters, wetlands and the way of life traditionally supported by the natural resources of the SRMT environment. Blue Legs, 867 F.2d at 1100. In fact, "the government to government relationship requires that Federal statutes and programs be administered in a manner that does not unilaterally interfere with Tribal rights, and that agencies missions be interpreted in a manner consistent with Federal Indian Law and Policy. Where an irreconcilable conflict arises, Tribal rights will generally take precedent." Memorandum, June 23, 1994, Ada E. Deer, Assistant Secretary-Indian Affairs, USDOAI, Office of the Secretary, Washington, D.C.

EPA must also take into account that the St. Regis Mohawk Reservation Area is a designated Environmental Justice Site, thus EPA must refer to the dictates of Executive Order No. 12898 for guidance in this matter.

The Executive Order directs "each federal agency (to) make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations....in the United States...." Id. § 1-101.

To carry out these goals, the memorandum accompanying the Executive Order specifically states that, in conducting analyses, "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects in minority communities and low-income communities." Id. at 280.

Consistent with this directive, Administrator Browner recognized in 1993 that "Environmental Justice must be considered a shared responsibility in the actions of all federal agencies and ultimately at the state, local and tribal government level." Transcript of Carol M. Browner's statement before the Government Operations Committee, U.S. House of Representatives, May 6, 1993.

In the context of the GM Site, EPA has yet to acknowledge its important obligations to protect Tribal sovereignty and to implement the Environmental Justice Directives. The Tribe respectfully requests that EPA address each of these issues in its Responsiveness Summary.

I. THE ST. LAWRENCE RIVER SEDIMENTS

The SRMT generally concurs in that aspect of the 1998 Plan which proposes to ship off-site the sediments and other materials dredged or excavated from the St. Lawrence River with contamination levels greater than 10 ppm. Although permanent treatment is the preferred choice, these sediments have been temporarily stored for over two years, and to leave them in place for another two years while treatment technologies are mobilized creates too great a risk of re-contamination.

II. FURTHER CHARACTERIZATION OF THE RACQUETTE RIVER CONTAMINATION

The 1998 Plan also proposes to dredge/excavate and ship off-site contaminated materials from the Raquette River. In light of recent and historical data which indicates PCB contamination further down-river than has currently been delineated, and the hydrogeologic conditions of the River, the Tribe cannot concur on this aspect of the Plan unless further characterization of the current extent of the contamination takes place. Specifically, the SRMT calls upon EPA to protect the traditional hunting and fishing grounds within and adjacent to the Mohawk Territory of Akwesasne, by requiring further characterization from GM Outfall 002 to the mouth of the Raquette River.

In ordering further characterization of the Raquette River, EPA must require adherence to Tribal clean-up and treatment standards ("ARARs"). Tribal ARARs for PCBs consist of a .1 ppm cleanup level for sediments, and a 1 ppm cleanup level for soils.

Attached hereto are summaries of fish and wildlife data collected in the Raquette River. Sediment data collected by Ward Stone in 1998 shows PCB levels in sediments of over .1 ppm (see attached figure). This is consistent with data collected by Environment Canada in 1985 which indicated PCB contamination at 2.8 ppm in sediments at the mouth of the Raquette River. The April, 1990 Fish Study by Jock & Sloan, as well as the October, 1992 Wildlife Study by Lawrence Skinner are consistent with these findings.

II. OFF-SITE DISPOSAL OF ADDITIONAL, CONTAMINATED MATERIALS

The 1998 Plan proposes to contain on-site in the East Disposal Area ("EDA") those materials with contamination levels below 10 ppm. Before the Tribe can concur in that portion of the remedy, EPA must order that GM remove the materials placed in the EDA during the 1992 excavation for the expansion of the Plant, as well as the Miscellaneous Site Soils collected in 1995. It is beyond question that these materials were at levels greater than 10 ppm.

Moreover, the Miscellaneous Site Soils were temporarily placed in the EDA. With the reduced cost of off-site disposal, EPA must require the excavation and off-site disposal of these materials, or provide an explanation as to why, other than the stored St. Lawrence River Sediments, the current Plan does nothing to reduce the overall load of PCB contaminated materials present at the Site

As long as the principal threat of material is to remain in place, and soils above 10 ppm are to remain in the EDA, the SRMT cannot concur on that portion of the 1998 Plan which proposes to add the soils excavated/dredged from the Raquette River or Groundwater cut-off wall to the EDA. As the volume of PCB laden material to remain on-site increases, so does the total potential for a release into the environment now or in the future.

MATERIALS TO BE STORED ON-SITE

The agency must provide more information on the mode of storage of the materials between 1-10 ppm. Specifically, EPA must precisely identify what ARAR's are being waived as part of this Plan, and what long-term controls will be in place to prevent the migration or exposure of these materials. Moreover, the Tribe requires detailed design specifications for the proposed vegetative soil cap.

IV. CONSISTENCY OF SITE-WIDE CLEANUP STANDARDS

Although admirable in its attempt, the 1998 Plan is deficient in what it does not say as opposed to what it does say. Unaddressed aspects of the OUI ROD are the North Disposal Area ("NDA"), the lagoons, and Mohawk soils and sediments.

The Tribe has grave concerns that the Agency may seek to raise the treatment levels for these remaining areas to 50 ppm. The Tribe will vigorously oppose any such plan. GM stands to save nearly 4 million dollars on this aspect of the remedy. With the cost of off-site disposal dramatically reduced, EPA must explore the possibility of excavating the NDA, and the inactive lagoons and shipping off-site those materials at levels greater than 10 ppm.

EPA must also take into consideration the reduced costs of off-site disposal in its decision-making on the OU II ROD and order the same remedy.

V. EPA AUTHORITY TO RE-VISIT REMEDIAL DECISIONS

In order to fashion a remedy at the Site while discharging its obligations to the Tribe, EPA must re-visit some of the decisions that have been made with respect to the Site. EPA's authority to do so is derived from the policies described in the Introduction to these comments, as well as from the Orders already in place pertaining to the Site.

The policy of respect for Tribal sovereignty and affirmative obligation to protect Tribal sovereign rights, provides the discretion to EPA to break precedent at this Site and order the remedy requested by the Tribe. EPA has been provided the opportunity, and in some instances ordered to take such action through the 1984 Indian Policy as reaffirmed by President Clinton and Administrator Browner in 1993, Executive Order No. 12898, and general principles of Indian Law.

Moreover, the Tribe has been diligent in placing in the Administrative Record its objections to anything short of a comprehensive, permanent remedy at the Site. Therefore, EPA is protected from any challenges to its remedial decisions by the Administrative Record.

Section XIII of the 1990 ROD states that:

"EPA may determine that in addition to the Work identified in this Order and attachments to this Order, additional response activities may be necessary to protect human health and the environment. If EPA determines that additional response activities are necessary, EPA may require Respondent to submit a work plan for additional response actions. EPA may also require Respondent to modify any plan, design, or other deliverable required by this Order, including any approved modifications" (emphasis added).

In addition, Section XXVI of the ROD, at paragraph "77" states:

"Nothing in this Order shall preclude EPA from taking any additional enforcement actions, including modification of this Order or issuance of additional orders, and/or additional remedial or removal actions as EPA may deem necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA, or any other applicable law." .

Clearly, as the enforcement authority in charge of the cleanup, EPA has retained the discretion to re-visit the remedial decisions that have been made, and to order GM to a more strict remedy.

VI. CONCLUSION

GM stands to save \$3.8 million from EPA's Proposed Plan to ship off site to a secure landfill, instead of treating materials above 10 ppm for the St. Lawrence River Sediments, Racquette River soils and sediments, and Groundwater Cut-off wall soils. GM should invest the savings in performing a more permanent clean up for the remaining areas that are not addressed in EPA's Proposed Plan.


SRMT would like to conclude with the following recommendations to EPA's Proposed Plan:

1. Further remedial investigation is needed from downstream of GM Outfall 002 to the mouth of the Raquette River. The Tribal ARAR of 0.1 ppm for PCBs in sediments must be enforced. Any sediments above 0.1 ppm should be removed from the river ecosystem to protect the fish and wildlife, and the health of the Mohawks, who continue to hunt and fish in our Traditional Territory, because it is an important part of their life, despite fish consumption advisories. EPA should not relieve GM of their obligation to cleanup contaminated sediments in Mohawk waters.
2. Anything above 1 ppm of PCB material should be shipped off site to a secure landfill from the Raquette River soils and sediments and cut off wall soils, unless GM is also willing to remove the Miscellaneous Site Soils and Plant Renovation soils above 10 ppm that have already been disposed in the EDA. Removing all soils between 10 and 500 ppm in the EDA would be necessary to be consistent with the OUI ROD clean up standard.

Thank you for allowing us to comment on EPA's Proposed Plan for the GM site. If you have any questions, we would welcome a meeting with you to discuss our comments.

Sincerely,


Edward D. Smoke,
Chief Executive Officer


John Bigtree Jr.,
Vice-Chief

Barbara A. Lazore
Barbara A. Lazore,
Legislative Councilor

Bryan J. Garrow,
Legislative Councilor

Alma E. Ransom
Alma E. Ransom,
Legislative Councilor

Hilda E. Smoke
Hilda E. Smoke,
Legislative Councilor

Paul O. Thompson,
Legislative Councilor

cc: Darrell Sweredowski, DEC
Mike O' Toole, DEC
John Privitera, Esq.



REYNOLDS METALS COMPANY

Primary Metals Division
P.O. Box 500 • Massena, New York 13662-0500 • (315)764-6000

Remediation Project Offices (315) 764-1996
FAX # (315) 764-9394

October 8, 1998

Anne Kelly, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

**Re: Comments to USEPA's Superfund Post-Decision Proposed Plan for
General Motors Corporation Superfund Site**

Dear Anne:

RMC has reviewed EPA's Post-Decision Proposed Plan describing the proposed changes to the remedy selected by USEPA in its December 17, 1990 Record of Decision for the first Operable Unit (OU1) of the General Motors Corporation Superfund Site, and submits this letter as a comment.

EPA's Post-Decision Plan indicates that all materials with PCB concentrations greater than 10 ppm would be shipped offsite for disposal at a secure landfill. EPA's own PCB disposal regulations, issued in June, recognize that bulk cleanup wastes can safely remain onsite at a facility like GM's at concentrations up to 50 ppm. TSCA and its regulations require that dredged sediments with concentrations of PCB's greater than 50 ppm be *either* incinerated, landfilled in a TSCA-approved chemical waste landfill, or disposed of by another method approved by EPA (40 CFR parts 761.60-761.9). The requirement in the proposed change to ship offsite the sediments with PCB levels exceeding 10 ppm appears to be unwarranted and costly. EPA's proposal appears to provide no additional health or environmental benefits since shipping material with PCB concentrations less than 50 ppm has a greater risk and cost than leaving this material onsite under a secure cover.

We feel that EPA should be consistent and follow the regulations concerning the disposal of less than 50 ppm PCB material. General Motors should not be required to spend additional funds to ship material offsite when the regulations allow this material to remain onsite with proper controls.

Sincerely,

Richard C. Esterline
Project Coordinator

Jefferson, Lewis and St. Lawrence Counties Central Trades and Labor Council, AFL-CIO

Ronald P. McDougall

President

32 Andrews Street
Massena, NY 13662

Telephone:

(315) 764-0271 UAW Hall
(315) 764-2293 Plant Office
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Richard A. LaLonde

1st Vice President

331 N. Indiana Ave.
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Affiliated With

AFL-CIO. . . New York State AFL-CIO



Joseph W. Selleck

Treasurer

37 Elm Street
Norwood, NY 13668

Telephone: (315) 353-2724

Robert M. Miles

Recording Secretary

P.O. Box 76

Deferiet, NY 13628

Telephone: (315) 493-3027

October 5, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

The Central Trades Council supports EPA's proposed plan to move material offsite rather than treat onsite.

However, we feel the pickup and ship offsite level of 10 ppm is inappropriate. The EPA 50 ppm spill clean-up level or EPA guidance of 500 ppm for industrial sites should be followed. We are sure a risk assessment would support these more reasonable levels.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Ronald P. McDougall'. The signature is fluid and cursive, with the first name 'Ronald' being the most prominent.

Ronald P. McDougall
President Central
Trades Council

Dear Ms. Kelly,

I would like to register my support for the August 1998 proposal for remediation of the first Operable Unit of the General Motors Superfund Site in Massena, New York. I commend EPA for reinstating treatment levels of 10 ppm and for proposing off-site shipment of contaminated materials rather than on-site "containment". However, I wish to remind EPA of the need for permanent remediation of other areas of the GM site, namely the East Disposal Area and Industrial Dump, which are not part of this proposal.

Signature(s) Holley White _____
Print Name(s) Holly White _____
Address HCR1 Box 231 _____
Malone, NY 12953 _____

Note: During the public comment period,
EPA received 64 post-cards similar
to the one copied here.

October 5, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

I approve of EPA's plan for the GM site. However, why not set the level of material going off site at 50 ppm. Use one-half of the money saved to educate the St. Regis Mohawk tribal members and leaders on PCB risks.

Sincerely,

A handwritten signature in black ink, appearing to read "Stanley P. Skerf". The signature is fluid and cursive, with the first name "Stanley" being more prominent.

NC Address

October 5, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

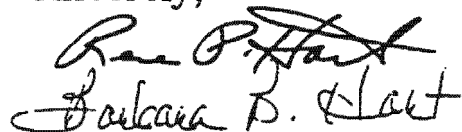
Subject: GM Site

Dear EPA:

We support EPA's proposed plan to move material offsite rather than treat onsite.

However, we feel the pickup and ship offsite level of 10 ppm is inappropriate. The EPA 50 ppm spill clean-up level or 500 ppm for industrial sites should be followed. We are sure a risk assessment would support these more reasonable levels.

Sincerely,

Handwritten signatures of Rene P. Hart and Barbara B. Hart. The signature of Rene P. Hart is written over the signature of Barbara B. Hart.

Rene & Barb Hart

126 Trippany Rd.
Massena, N.Y.

13662

October 5, 1998

Anne Kelly
Remedial Project Manager
U. S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Ms. Kelly

I am writing this letter to inform you that I support a plan to allow General Motors Massena Plant to dispose of remediation materials with PCB concentrations above 50 ppm to an off-site landfill. Additionally, I would support a plan to allow any remediation materials less than 50 ppm to be properly disposed of on-site.

Sincerely



Carl Engel

3 Elgin Ave
Massena NY

13662

October 5, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

We support EPA's plan to ship material off site instead of treatment. In future plans, we would like to see low level material consolidated in the East area or landfill. The amount should be based on risk based numbers.

Sincerely,

Mark + Patti Burnett

No Address



MASSENA
ECONOMIC DEVELOPMENT COUNCIL

P.O. Box 5217, 41 Main Street
Massena, New York 13662
(315) 769-8484

Frank Alguire
Executive Director

October 9, 1998

Anne Kelly, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, NY 10007-1866

Dear Ms. Kelly:

The Massena Economic Development Council wishes to formally comment on your recently released proposed remediation plan for GM-Powertrain at Massena, NY. Our concerns specifically relate to levels of PCB required to be sent offsite, and were approved by our board in their regularly scheduled monthly meeting of Monday, October 5, 1998.

As the EPA knows, we have offered various comments over the years relating to GM's environmental situation. Allow us to reiterate some of our concerns, for the record. Beginning in June of 1990 and again in July of 1991, we submitted comments regarding the GM plant here that in part questioned regulation of PCB's in a more general manner. Our concern all along has been two-fold: 1) EPA's basis for PCB regulation, and 2) the high emotional content in discussions of this issue locally, and at the state and federal level. We have questioned the logical leaps made by EPA in PCB regulation when it seems there is substantial debate in the scientific community as to the actual danger to human health and the environment in general from all forms of PCB's. To summarize, we understand that there may be a connection between highly chlorinated PCB's and environmental risk, but it seems that there is little evidence to suggest risk from lower chlorinated PCB's. At the GM site, most of the PCB's are of the lower chlorinated variety, like 1232 and 1248's. Nevertheless, EPA went from considering all forms of PCB's as **probable** cancer causing agents to **known**, with a stroke of the pen, so to speak. It is certainly sobering to step back and consider the basis of the enormous impact of these regulations. We still wonder if EPA is performing a public benefit in their regulation of PCB's.

A June 14, 1998 article in the Watertown Daily Times noted that last fall, a major study in the New England Journal of Medicine by researchers from Harvard and Mount Sinai Hospital in New York found no evidence of increased breast cancer risk among women with high levels of organochlorines from such chemicals as DDT and PCBs. In fact, what most researchers are now finding in regards to cancer risk is that the majority of cancers result from a complex set of variables, including genetic disposition, internal chemistry, and lifestyle. We should refocus our environmental efforts on things that are of **certain** risk to human health and the environment.

Back in 1990, EPA's own risk assessment showed that removing the land based PCB deposits at GM posed a significant short-term health risk. We now understand that EPA has recently promulgated new PCB disposal regulations for bulk cleanup wastes like the GM soils and

Page two

sediments with up to 100ppm PCBs that can and should be applied to GM's site. Essentially, this would allow GM to place such materials beneath a water-repellent cap, in an onsite area protected by groundwater management controls, fencing, and regular inspections.

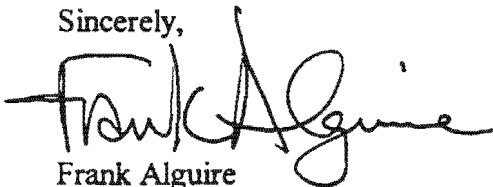
We do not want to see thousands of tons of materials between 10ppm and 50ppm shipped offsite. Depositing these materials under a cap would significantly reduce risk of accidents, injuries and spillage inherent in EPA's proposed plan. Such risks threaten our community much, much more than if this low level material is deposited on site under a cap. Additionally, the removal and subsequent trucking in of "clean" soil to fill in holes is a significant waste of energy. Low concentration sediments and soils on the GM site should be consolidated with other site soils designated for containment, before placing a secure cap over the area. Specifically, we support EPA's proposal for off-site disposal, but at concentration levels of 50 ppm and more.

We must again underline our concern about the emotional and unscientific nature of many who take any opportunity to criticize GM. We don't question their sincerity, just their objectivity. This carries over to the public hearing process, which has become a convenient soap box for activists and radicals. These hearings are really not reflective of local concerns, and people have stopped going to them and offering comments because they question the validity of the entire process. The public hearing process is flawed, at least in terms of determining community interest.

There is no question that our small community stands firmly in support of GM's plant here in Massena in many ways. It wasn't so long ago we thought we were going to lose the plant entirely. It's rebirth is a testament to the men and women who have and do work there, and their tenacity to make it work. Each piece of the equation is important, and while the community is sensitive to environmental concerns, there is a clear feeling that GM's approach for the site has been one of long term protection of human health and the environment.

In closing, we would ask your reconsideration of proposed off-site disposal levels to 50 ppm and more. We appreciate your positive consideration of our comments. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank Alguire". The signature is stylized with a large, looped "F" and a cursive "Alguire".

Frank Alguire
Executive Director

cc: U.S. Senator Moynihan
U.S. Senator D'Amato
U.S. Representative McHugh
Massena Town Supervisor Sauve
Massena Village Mayor Boots

October 10, 1998

Ms. Anne Kelly
Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, N.Y. 10007-1866

Subject: GM Site

Dear EPA:

I support EPA's plan to ship material off site instead of treatment. In future plans, I would like to see low level material consolidated in the East area or landfill. The amount should be based on risk based numbers.

Sincerely,

A handwritten signature in cursive script that reads "Pat Leffler".

R.F.D. # 1 Box 25
Constable, NY 12926



MASSENA PLANT
P.O. Box 460
Massena, New York
13662-0460

October 12, 1998

Anne Kelly, Remedial Project Manager
U.S. Environmental Protection Agency
290 Broadway, 20th Floor
New York, New York 10007-1866

Re: General Motors-Massena Superfund Site, Massena, New York
Comments on the Post Decision Proposed Plan dated August 1998

Dear Ms. Kelly:

In reference to the U.S. Environmental Protection Agency's proposed change to the December 17, 1990 Record of Decision, enclosed are the comments of General Motors Corporation on the Post-Decision Proposed Plan dated June 1995. GM requests this letter, including its attachments and materials incorporated by reference, be fully considered by the USEPA and included in the administrative record for this matter. The attachment and referenced documents are an integral part of this letter and none should be considered without the other.

Nothing in this letter or its attachments is intended to be construed to waive or limit the claims and defenses that GM may raise in any future proceedings by USEPA or any other person, and the company specifically reserves all such rights and defenses.

General Motors is committed to the successful completion of this remediation program and looks forward to continuing a cooperative and productive working relationship with the USEPA during the remaining remediation work at the site.

Sincerely,

A handwritten signature in dark ink, appearing to read "D. C. Premo".

Douglas C. Premo
GM Project Coordinator

Enclosure

**GM's COMMENTS OF GENERAL MOTORS CORPORATION ON THE
AUGUST 1998 POST-DECISION PROPOSED PLAN FOR THE
GENERAL MOTORS SITE, MASSENA, NY**

October 12, 1998

Following are the comments of General Motors Corporation ("GM") on the Post-Decision Proposed Plan ("Proposed Plan") issued by the U.S. Environmental Protection Agency ("EPA") in August 1998 concerning the General Motors Superfund Site in Massena, New York. The Proposed Plan withdraws the June 1995 Proposed Plan for Operable Unit 1 ("OU1") of the Site, even though it proposes a substitute plan for only a fraction of the total waste material involved in OU1. The substitute plan provided for offsite disposal without treatment, in a facility permitted to receive waste regulated under the Resource Conservation and Recovery Act ("RCRA") and the Toxic Substances Control Act ("TSCA"), of soils and sediments to be excavated from the Raquette River and its banks, soils from installation of the site-wide groundwater control system, and all St. Lawrence River sediments stockpiled at the Site.

In general, while the concept of offsite disposal without treatment rather than onsite treatment and disposal may be appropriate under the circumstances of the Site, there is no basis under CERCLA, the National Contingency Plan, or EPA guidance for the following elements of the Proposed Plan:

- The requirement that excavated and dredged materials containing PCBs at concentrations less than 50 ppm be sent offsite instead of being placed within the onsite area that is planned to be capped in any event; and
- The requirement that excavated and dredged materials containing PCBs at concentrations less than 50 ppm be sent to a facility permitted under RCRA to receive hazardous waste and permitted under TSCA to receive PCBs over 50 ppm.

The materials in the administrative records for the two operable units of the Site, including all of GM's prior comments and other submissions (which are hereby incorporated by reference), unequivocally demonstrate that there would be no risk to human health or the environment from containing soils and sediments at concentrations less than 50 ppm PCBs onsite under a cap in the vicinity of the East Disposal Area. At the same time, sending such materials to an offsite facility would cost significantly more than onsite disposal and would present a higher risk of transportation-related accidents and injuries.

1. There is no rational basis for requiring that excavated and dredged materials containing PCBs at concentrations less than 50 ppm be sent offsite

In general, neither TSCA nor New York law regulates the disposal of soil and debris containing PCBs at concentrations less than 50 ppm, unless the PCBs result from post-1978 releases of higher concentration PCBs. The only reason that such soil and debris is subject to government agency attention at the GM Site is because other materials containing PCBs at concentrations greater than 50 ppm are present at the Site. The mere presence of these other materials at the facility should not fundamentally alter how the lower concentration materials are addressed, since the materials can generally be segregated by concentration.

EPA's revised PCB disposal regulations, issued in June 1998 after years of careful consideration, recognize that bulk remediation wastes like the GM soils and sediments can safely remain in low occupancy areas at concentrations up to 25 ppm PCBs without any particular protective measures. A "low occupancy area" for purposes of bulk PCB remediation waste is any area where such waste has been disposed of onsite and where occupancy for any individual not wearing dermal and respiratory protection is less than 335 hours per year (an average of 6.7 hours per week). See 63 Fed. Reg. 35384, 35437 (June 29, 1998) (to be codified at 40 C.F.R.

761.3). If the Site is secured by a fence and appropriately marked, up to 50 ppm PCBs can safely remain in a low occupancy area. If the remediation wastes are covered with a cap of soil, concrete, or asphalt meeting TSCA regulatory requirements, up to 100 ppm PCBs may be left in such a location. See 63 Fed. Reg. at 35449 (June 29, 1998) (to be codified at 40 C.F.R. 761.61).

There is no question that the outdoor areas where bulk PCB remediation wastes are currently present at the GM Site fit the definition of "low occupancy area." These areas are spatially isolated from the remainder of the GM facility and are not subject to regular worker traffic. All GM facility grounds are monitored, and the areas in which bulk PCB remediation waste are located are surrounded by chain link fencing topped with barbed wire. These areas are also separated by land and water from the St. Regis Mohawk Tribe residences to the east. Even after remediation is completed, these areas would be visited only for purposes of inspecting and maintaining elements of the remedy, for a total of about 180 person-hours per year.

The Record of Decision ("ROD") for Operable Unit 2 ("OU2") at the GM Site already provides for leaving PCBs in the East Disposal Area at concentrations up to 500 ppm PCBs, beneath a composite cap. The Industrial Landfill also will remain onsite, beneath an enhanced cap. Moreover, a site-wide groundwater control system will be installed to ensure the hazardous substances cannot migrate north or east from the areas of bulk PCB remediation waste, and all containment areas would be regularly inspected. In the June 1995 Proposed Plan, EPA concluded that consolidating additional soils and sediments containing up to 500 ppm PCBs in the vicinity of the East Disposal area beneath the composite cap would be protective of human health and the environment. Even if EPA chooses to withdraw the June 1995 Proposed Plan, it cannot simply walk away from the facts and reasoning underlying its prior conclusions.

At the Reynolds Metals Company Site, adjacent to the GM facility, EPA has just decided to allow river sediments containing up to 50 ppm PCBs to be disposed of onsite. Both EPA and the State of New York agreed that this remedy would protect human health and the environment. The geology and other relevant characteristics of the GM facility are at least as conducive to safe onsite disposal of low-concentration PCBs in soil as the Reynolds facility.

In the face of the information, reasoning, and conclusions supporting the revised PCB disposal regulations, the OU2 ROD, the 1995 Proposed Plan, and the Reynolds Metal ROD (which is hereby incorporated into these comments by reference), EPA cannot rationally require the offsite shipment of soils and sediments containing less than 50 ppm PCBs instead of leaving such low-threat materials onsite beneath a cap that complies with TSCA requirements. These materials would present no threat to human health or the environment if left onsite under a cap; therefore, a remedy providing for such onsite containment would provide overall protection of human health and the environment.

Moreover, sending materials between 10 ppm and 50 ppm PCBs offsite would lead to reduced short-term effectiveness, because it would involve greater handling and transportation of thousands of tons of material and the accident and injury risks that such handling and transportation would involve. Even though EPA's proposal involves only a few thousands cubic yards of material less than 50 ppm PCBs, sending such volume offsite would require the use of rail cars or tractor-trailers (hundreds of additional truck trips), which would threaten an increased risk of accidents, injuries, and spillage. Although the Proposed Plan suggests that transportation risks "are estimated to be small due to the short duration of offsite disposal activities," transportation risks are based on the total number of vehicle miles traveled in the course of the project, not the duration of the project.

EPA portrays its proposal as cost-effective by comparing the costs of disposing offsite all specified soils and sediments over 10 ppm with the costs of treating all of these materials onsite. This is inappropriate, for two reasons. First, in its 1995 proposal, EPA agreed that treating materials containing less than 500 ppm PCBs was inconsistent with EPA policy and not the best alternative for this Site. Second, EPA omits any comparison of the costs of its proposed alternative with the costs of an alternative that includes onsite disposal of soils and sediments containing less than 50 ppm PCBs. The latter comparison demonstrates that the EPA proposal is not a cost-effective method of achieving the specified level of health and environmental protection. The EPA proposal would send 17,930 cubic yards of material offsite at a transportation and disposal cost of \$4.4 million (excluding excavation, dredging, and backfilling costs), or an average cost of \$245 per cubic yard. Onsite disposal beneath an appropriate cap of the approximately 4,360 cubic yards of Raquette River sediments and bank soils and groundwater control trench soils containing between 10 ppm and 50 ppm PCBs, however, would cost on the order of \$25 per cubic yard, since no expansion of the currently planned cap would be needed to handle these materials. In other words, EPA is attempting to require an incremental expenditure of about \$960,000 to move the latter volume of low-threat material offsite, with no associated health or environmental benefit. (In fact, as noted above, such an expenditure would result in greater human health risks than disposing of the material onsite beneath an appropriate cap.)

GM would like to emphasize that, if EPA is considering extending the proposed remedy (offsite disposal of materials over 10 ppm rather than just those over 50 ppm) to the remainder of the OUI soils and sediments, all of the above reasons would militate even more heavily against such an approach. Outside of the materials involved in the 1998 Proposed Plan, there are more

than 25,000 cubic yards of soils and sediments involved in OU1 that contain between 10 ppm and 50 ppm PCBs. There is room to contain such low-threat materials onsite beneath a cap and within the groundwater control area. Sending such soils and sediments offsite not only would require approximately 385 unnecessary rail car or 1,250 unnecessary truck trips to move the materials to a disposal site, presenting significant additional transportation and handling risks, but would also cost about \$5.5 million more than disposing of such low-threat materials onsite. In other words, EPA's proposed approach would simply shift low-threat material from one location to another, at a much greater risk and cost than leaving it onsite, without providing any additional health or environmental benefits.

- 2. There is no rational basis for requiring that excavated and dredged materials containing PCBs at concentrations less than 50 ppm be sent to a "RCRA- and TSCA - approved" facility.**

Although the Proposed Plan is not entirely clear on this point, it appears to require all offsite disposal to occur at a facility permitted under RCRA and TSCA to accept hazardous waste and waste containing more than 50 ppm PCBs. As noted previously, soil containing less than 50 ppm PCBs does not present any health or environmental threat as long as it is placed beneath a simple soil or asphalt cap. Facilities permitted under TSCA and RCRA typically charge disposal fees that are significantly higher than ordinary solid waste disposal facilities, given the higher costs of constructing and operating such facilities. There is no reason to require the features of TSCA and RCRA facilities for the disposal of soil and debris containing less than 50 ppm PCBs. For all the reasons listed in these comments, there is no rational basis for requiring GM Site soils and sediments containing less than 50 ppm PCBs to be disposed of at a "RCRA- and TSCA- approved facility."

For all of the foregoing reasons, GM requests that EPA modify the Proposed Plan to provide for onsite disposal of materials containing between 10 ppm and 50 ppm PCBs beneath an appropriate cap.

3. Material from onsite lagoons could be included in this phase of work.

The lagoons at the Site contain material with PCB concentrations that exceed 50 ppm. Consistent with the revised PCB disposal regulations, this material could be sent offsite for disposal without incineration, once it satisfied the necessary requirements for landfilling (which may require some dewatering and/or stabilization). Including the lagoon sediments in the proposal would expedite the remedial action in a manner which is both protective of human health and the environment and cost-effective.

ATTACHMENT E
INDEX OF RELEVANT HEALTH STUDIES

Attachment E

List of Health Studies Performed at Akwesasne

1. New York State Department of Health (NYSDOH) Study of PCB Exposure among Mohawk Women and Infants. The study was funded by the Agency for Toxic Substances and Disease Registry (ATSDR) and performed by the NYSDOH.
2. ATSDR (1995) Final Report. Exposure to PCBs from Hazardous Waste Among Mohawk Women and Infants at Akwesasne. Bureau of Environmental and Occupational Epidemiology, New York State Department of Health and Health Research. January 1995.
3. Fitzgerald, E.F., Hwang, S.A., Bush, B., Cook, K., and Worswick, P. (1998) Fish Consumption and Breast Milk PCB Concentrations among Mohawk Women at Akwesasne. Am. J. Epidemiol. 148:164, 1998.
4. Fitzgerald, E.F., Hwang, S.A., Brix, K.A., Bush, B., Cook, K., and Warwick, P. Fish Consumption and Exposure to PCBs from Hazardous Waste among Mohawk Women at Akwesasne. J. Exposure Analysis and Environmental Epidemiology. 5:119, 1995.
5. Hwang, S.A., Fitzgerald, E.F., Cayo, M., Tarbell, A., and Jacobs, A. Assessing Environmental Exposure to PCBs among Mohawk Men at Akwesasne. Environmental Research (in press).
6. Fitzgerald, E.F., Deres, D.A., Hwang, S.A., Bush, B., Yang, B.Z., Tarbell, A., and Jacobs, A. Local Fish Consumption and Serum PCB Concentrations among Mohawk Men at Akwesasne. Environmental Research (in press).
7. Kinney A., Fitzgerald E., Hwang S., Bush B., Tarbell A. Human Exposure to PCBs: Modeling and Assessment of Environmental Concentrations on the Akwesasne Reservation. Drug Chem Toxicol 1997 Nov;20(4):313-28
8. Fitzgerald E.F., Brix K.A., Deres D.A., Hwang S.A., Bush B., Lambert G., Tarbell A. Polychlorinated biphenyl (PCB) and dichlorodiphenyl dichloroethylene (DDE) Exposure among Native American Men from Contaminated Great Lakes Fish and Wildlife. Toxicol Ind Health 1996 May-Aug;12(3-4):361-8
9. Hong C.S., Xiao J., Casey A.C., Bush B., Fitzgerald E.F., Hwang S.A. Mono-ortho- and non-ortho-substituted polychlorinated biphenyls in Human Milk from Mohawk and Control Women: Effects of Maternal Factors and Previous Lactation. Arch Environ Contam Toxicol 1994 Oct;27(3):431-7